### **2019 Index**

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This index covers all technical items—papers, correspondence, reviews, etc.—that appeared in this periodical during 2019, and items from previous years that were commented upon or corrected in 2019. Departments and other items may also be covered if they have been judged to have archival value.

The Author Index contains the primary entry for each item, listed under the first author's name. The primary entry includes the coauthors' names, the title of the paper or other item, and its location, specified by the publication abbreviation, year, month, and inclusive pagination. The Subject Index contains entries describing the item under all appropriate subject headings, plus the first author's name, the publication abbreviation, month, and year, and inclusive pages. Note that the item title is found only under the primary entry in the Author Index.

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Celma, S., see Perez-Resa, A., TIM Dec. 2019 4876-4886

Celma, S., see Garcia-Bosque, M., TIM Jan. 2019 291-293

Cennamo, N., Zeni, L., Pesavento, M., Marchetti, S., Marletta, V., Baglio, S., Graziani, S., Pistorio, A., and Ando, B., A Novel Sensing Methodology to Detect Furfural in Water, Exploiting MIPs, and Inkjet-Printed Optical Waveguides; *TIM May 2019 1582-1589* 

Cerro, G., see Capriglione, D., TIM May 2019 1302-1312

Cervellera, C., see Cataliotti, A., TIM Feb. 2019 430-438

Cevenini, G., see Addabbo, T., TIM July 2019 2469-2478

Chai, Q., see Mu, B., TIM May 2019 1575-1581

Chai, Z., see Zhang, J., TIM Oct. 2019 4112-4121

Chakraborty, M., Kalita, A., and Biswas, K., PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing; TIM Jan. 2019 189-196

Chakraborty, M., and Biswas, K., Hardware Platform to Detect Fat Percent in Milk Using a Lipase Immobilized PMMA-Coated Sensor; TIM Nov. 2019 4526-4534

Champagne, A.E., see Marshall, C., TIM Feb. 2019 533-546

Chang, C., see Tseng, V., TIM Sept. 2019 3321-3328

Chang, L., Qin, F., and Wu, M., Gravity Disturbance Compensation for Inertial Navigation System; TIM Oct. 2019 3751-3765

Chang, S., see Choi, B., TIM May 2019 1382-1388

Chao, L., Seifert, F., Haddad, D., Stirling, J., Newell, D., and Schlamminger, S., The Design and Development of a Tabletop Kibble Balance at NIST; TIM June 2019 2176-2182

**Chappell, P.H.,** see Hu, N., TIM May 2019 1432-1440

Charpillet, F., see Daher, M., TIM Nov. 2019 4590-4599

Chatterjee, A., see Paral, P., TIM Nov. 2019 4276-4284

Chaturvedi, T., see Maheshwari, M., TIM Aug. 2019 2943-2953

Cheah, K.H., see Lee, J.R., TIM Nov. 2019 4518-4525

Chen, B., see Liu, F., TIM Feb. 2019 525-532

Chen, C., see Zhang, X., TIM April 2019 1157-1164

Chen, C., see Lin, C., TIM Aug. 2019 2830-2848

Chen, H., see Su, B., TIM Dec. 2019 4675-4688

Chen, J., see Lan, L., TIM April 2019 1140-1147

Chen, J., see Hao, L., TIM June 2019 1827-1832

Chen, K., see Ma, X., TIM Oct. 2019 3801-3809

Chen, L., Li, Y., Zhong, X., Zheng, Q., and Liu, H., An Automated System for Position Monitoring and Correction of Chord-Based Rail Corrugation Measuring Points; TIM Jan. 2019 250-260

Chen, L., Zhao, W., Wang, F., Wang, Q., and Huang, S., An Interharmonic Phasor and Frequency Estimator for Subsynchronous Oscillation Identification and Monitoring; *TIM June 2019 1714-1723* 

Chen, L., Zhao, W., Wang, Q., Wang, F., and Huang, S., Dynamic Harmonic Synchrophasor Estimator Based on Sinc Interpolation Functions; *TIM Sept.* 2019 3054-3065

Chen, M., see Liao, L., TIM Feb. 2019 377-391

Chen, M., see Zhang, L., TIM Feb. 2019 355-367

Chen, M., see Ren, M., TIM April 2019 1148-1156

Chen, R., see Wei, Z., TIM Jan. 2019 197-205

Chen, S., see Zhao, S., TIM Jan. 2019 138-150

Chen, S., see Shi, L., TIM Aug. 2019 2996-3003

Chen, S., Yang, Y., Dong, X., Xing, G., Peng, Z., and Zhang, W., Warped Variational Mode Decomposition With Application to Vibration Signals of Varying-Speed Rotating Machineries; TIM Aug. 2019 2755-2767

Chen, T., see Sun, L., TIM Feb. 2019 421-429

Chen, W., see Zhao, Z., TIM Jan. 2019 169-176

Chen, W., see Hu, C., TIM Oct. 2019 3733-3739

Chen, X., Yang, S., Pommerenke, D.J., He, Y., Yu, M., and Fan, J., Compact Intermodulation Modulator for Phase Reference in Passive Intermodulation Measurements; TIM Dec. 2019 4612-4614

Chen, X., see Yang, B., TIM Dec. 2019 4736-4745

Chen, X., see Wei, Z., TIM Jan. 2019 197-205

Chen, X., see Yin, M., TIM Jan. 2019 49-64

Chen, X., see Sun, L., TIM Feb. 2019 421-429

Chen, X., see Tang, T., TIM Aug. 2019 2785-2791

Chen, X., see Guan, S., TIM Oct. 2019 4122-4134

Chen, X., see Li, G., TIM Oct. 2019 3942-3949

Chen, X., see Ma, X., TIM Oct. 2019 3801-3809

Chen, X., Cheng, J., Song, R., Liu, Y., Ward, R., and Wang, Z.J., Video-Based Heart Rate Measurement: Recent Advances and Future Prospects; *TIM Oct.* 2019 3600-3615

Chen, Y., see Khawaja, A.H., TIM Dec. 2019 4712-4722

Chen, Y., see Zhang, S., TIM Dec. 2019 4817-4824

Chen, Y., Fadda, M.G., and Benigni, A., Decentralized Load Estimation for Distribution Systems Using Artificial Neural Networks; *TIM May 2019 1333-1342* 

Chen, Y., see Zhao, D., TIM Oct. 2019 3418-3432

Chen, Y., see Zhu, C., TIM Nov. 2019 4600-4607

Chen, Z., see Yang, Y., TIM Dec. 2019 4618-4628

Chen, Z., see Pan, D., TIM Oct. 2019 3576-3588

Cheng, J., see Yu, B., TIM Oct. 2019 4146-4151

Cheng, J., see Chen, X., TIM Oct. 2019 3600-3615

**Cheng, J.C.,** see Lin, Y., TIM Feb. 2019 474-482

Cheng, S., see Zhang, R., TIM April 2019 1120-1131

Cheng, T., see Zhou, X., TIM Jan. 2019 234-239

Cheng, T., see Shi, L., TIM Sept. 2019 3244-3252

Cheng, Y., see Zhang, R., TIM April 2019 1120-1131

Cheng, Y., Wong, K., Hung, K., Li, W., Li, Z., and Zhang, J., Deep Nearest Class Mean Model for Incremental Odor Classification; *TIM April* 2019 952-962

Cheng, Y., see Gou, B., TIM Sept. 2019 3358-3366

Chew, M.T., see Alam, F., TIM Aug. 2019 2714-2723

Chiang, Y., see Tang, D., TIM May 2019 1441-1450

Chindamo, D., see Galli, A., TIM July 2019 2433-2441

Cho, C., see Kang, N., TIM June 2019 1967-1972

Cho, H.J., see Hwang, J., TIM July 2019 2387-2393

Cho, S., see Zhang, S., TIM Oct. 2019 3635-3646

Choi, B., Shin, J., Kim, S., Lee, J., Seong, D., Lee, J., Lee, J., Chang, S., Park, J., and Lee, S., Effects of Aperture Diameter on Image Blur of CMOS Image Sensor With Pixel Apertures; TIM May 2019 1382-1388

Choi, S.B., see Shin, S., TIM April 2019 972-979

Choi, U., Kim, H., Han, S., and Yang, J., Measurement Method of Amplitude Ratios and Phase Differences Based on Power Detection Among Multiple Ports; TIM Dec. 2019 4615-4617

Chou, C., see Tsai, H., TIM May 2019 1561-1574

Chow, T.W.S., see Yang, A., TIM Dec. 2019 4629-4639

Chow, T.W.S., see Jin, X., TIM Sept. 2019 3128-3136

Chua, E., see Zhao, Z., TIM Jan. 2019 169-176

Chunyang, J., see Mohns, E., TIM June 2019 2121-2128

Ciampolini, P., see Bianchi, V., TIM Feb. 2019 566-575

Ciani, L., see Luchetta, A., TIM Feb. 2019 439-449

Cigada, A., see Lavatelli, A., TIM Oct. 2019 4065-4074

Cigada, A., see Lavatelli, A., 11M Oct. 2019 4065-407

Cioni, R., see Buffi, A., TIM March 2019 845-853

Cohen, Y., Ya'akobovitz, A., Comparative Study on Modeling Approaches of V-Shaped MEMS Temperature Sensors; TIM Oct. 2019 3766-3775

Collantes, J., see Alonso-Valdesueiro, J., TIM Oct. 2019 4094-4103

Collier, C.M., see Brodie, C.H., TIM July 2019 2531-2538

Collier, R.J., see Azeez, Y.F., TIM Jan. 2019 294-296

Collin, A.J., Djokic, S.Z., Drapela, J., Langella, R., and Testa, A., Proposal of a Desynchronized Processing Technique for Assessing High-Frequency Distortion in Power Systems; TIM Oct. 2019 3883-3891

Collin, A.J., Femine, A.D., Gallo, D., Langella, R., and Luiso, M., Compensation of Current Transformers' Nonlinearities by Tensor Linearization; TIM Oct. 2019 3841-3849

Comes, M.C., see Callari, G., TIM July 2019 2425-2432

Comes, M.C., see Casti, P., TIM July 2019 2442-2450

Constantin, F.L., Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants; TIM June 2019 2151-2159

Cooke, M., see Ren, Z., TIM March 2019 754-761

Corminboeuf, D., Calibration of the Absolute Linearity of Lock-In Amplifiers; TIM June 2019 2060-2065

Corso, A.J., see Donazzan, A., TIM April 2019 1165-1177

Cortes-Osorio, J.A., Gomez-Mendoza, J.B., and Riano-Rojas, J.C., Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform; TIM Oct. 2019 4038-4050

Corti, F., see Luchetta, A., TIM Feb. 2019 439-449

Cosentino, M., see Pisu, S., TIM July 2019 2404-2411

Cosentino, V., see Cataliotti, A., TIM Feb. 2019 430-438

Cosentino, V., see Cataliotti, A., TIM May 2019 1322-1332

Costanzo, I., see Algudsi, A., TIM Sept. 2019 3396-3404

Cotilla-Sanchez, E., see Wu, C., TIM Sept. 2019 3387-3395

Cozza, A., Low Frequency Model-Based Identification of Soft Impedance Faults in Cables; TIM Oct. 2019 3524-3535

Crenna, F., see Rossi, G.B., TIM May 2019 1343-1352

Crenna, F., see Rossi, G.B., TIM Nov. 2019 4357-4367

Cricenti, A., see Callari, G., TIM July 2019 2425-2432

Crispino, R., see Ando, B., TIM July 2019 2356-2362

Crispino, R., see Ando, B., TIM May 2019 1477-1484

Cristaldi, L., Faifer, M., Laurano, C., Ottoboni, R., Toscani, S., and Zanoni, M., A Low-Cost Generator for Testing and Calibrating Current Transformers; TIM Aug. 2019 2792-2799

Cristiani, P., see Iannucci, L., TIM May 2019 1424-1431

Crotti, G., see Cataliotti, A., TIM May 2019 1322-1332

Crotti, G., Femine, A.D., Gallo, D., Giordano, D., Landi, C., and Luiso, M., Measurement of the Absolute Phase Error of Digitizers; TIM June 2019 1724-1731

Crotti, G., see Faifer, M., TIM Aug. 2019 2800-2807

Crotti, G., Femine, A.D., Gallo, D., Giordano, D., Landi, C., Luiso, M., Mariscotti, A., and Roccato, P.E., Pantograph-to-OHL Arc: Conducted Effects in DC Railway Supply System; *TIM Oct.* 2019 3861-3870

Crotti, G., Delle Femine, A., Gallo, D., Giordano, D., Landi, C., and Luiso, M., Calibration of Voltage and Current Transducers for DC Railway Systems; TIM Oct. 2019 3850-3860

Crowley, T.P., see Botello-Perez, M., TIM Feb. 2019 558-565

Cruz, R.M.S., see Melo, A.A.d., TIM May 2019 1554-1560

Cruz, S.M.A., see Soleimani, Y., TIM Aug. 2019 2916-2925

Cuccato, D., see Donazzan, A., TIM April 2019 1165-1177

Cui, J., see Liu, S., TIM Jan. 2019 73-86

Cui, X., see Gu, D., TIM June 2019 2280-2287

Cui, Y., see Li, Z., TIM April 2019 1132-1139

### D

D'Antona, G., and Perfetto, L., Partial Discharge Localization in Insulated Switchgears by Eigenfunction Expansion Method; TIM May 2019 1294-1301

D'Elia, V., see Kim, D.B., TIM June 2019 1941-1947

Daher, M., Hage, J.A., El Badaoui El Najjar, M., Diab, A., Khalil, M.A., and Charpillet, F., Toward High Integrity Personal Localization System Based on Informational Formalism; *TIM Nov. 2019 4590-4599* 

Dahnoun, N., see Tancock, S., TIM Oct. 2019 3406-3417

Dai, H., Hu, C., Su, S., Lin, M., and Song, S., Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking; *TIM Sept.* 2019 3379-3386

Dang, W., see Gao, Z., TIM July 2019 2491-2497

Daprati, E., see Casti, P., TIM July 2019 2442-2450

Das, S., see Kumar, M.R., TIM Dec. 2019 4834-4844

Das, S., and Saha, A., Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System; TIM Sept. 2019 3308-3320

Dashpute, A., Anand, C., and Sarkar, M., Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light; TIM Jan. 2019 160-168

Daunoras, V., see Nakutis, Z., TIM March 2019 713-721

Dauri, M., see Casti, P., TIM July 2019 2442-2450

Davis, P.N., see Wright, P.S., TIM June 2019 1688-1695

De Angelis, A., see Santoni, F., TIM May 2019 1494-1502

de Barros e Vasconcellos, R.T., see Martins, M.B., TIM June 2019 2007-2014

de Camargo, E.D.L.B., see Mellenthin, M.M., TIM Sept. 2019 3137-3150

**De Hert, S.C.,** see Ren, Z., TIM March 2019 754-761

de Jesus Rangel-Magdaleno, J., see Garcia-Bracamonte, J.E., TIM May 2019 1353-1361

**de Morais Franca, M.B.,** Morais, F.J.O., Carvalhaes-Dias, P., Duarte, L.C., and Siqueira Dias, J.A., A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology; *TIM Feb. 2019 606-613* 

de Moura, F.S., see Mellenthin, M.M., TIM Sept. 2019 3137-3150

De Munari, I., see Bianchi, V., TIM Feb. 2019 566-575

de Rezende, M.F., see Arencibia, R.V., TIM Dec. 2019 4798-4806

DeBoi, B.T., see Nelson, B.W., TIM Jan. 2019 129-137

Debruyne, D., see Lavatelli, A., TIM Nov. 2019 4376-4386

Dekemper, E., see Vanhamel, J., TIM March 2019 874-881

Della Corte, F.G., see Carotenuto, R., TIM July 2019 2507-2518

**Delle Femine, A.,** see Crotti, G., TIM Oct. 2019 3850-3860

Deng, B., see Gao, J., TIM Dec. 2019 4765-4778

Deng, H., see Zhang, J., TIM Oct. 2019 4112-4121

Deng, H., Duan, C., Xiao, S., Xie, J., Zhang, H., Sun, X., and Zhou, X., k-Space-Based Enhancement of Pulmonary Hyperpolarized <sup>129</sup>Xe Ventilation Images; TIM Oct. 2019 3950-3961

Depari, A., see Galli, A., TIM July 2019 2433-2441

Depari, A., see Rizzi, M., TIM April 2019 1101-1111

DeRego, P., see Borna, A., TIM Feb. 2019 493-501

Dersin, P., see Atamuradov, V., TIM Aug. 2019 2691-2704

Derviskadic, A., see Frigo, G., TIM Oct. 2019 3810-3822

**Derviskadic, A.,** *see* Frigo, G., *TIM Oct.* 2019 3468-3483 **Devasagayam, J.,** *see* Brodie, C.H., *TIM July* 2019 2531-2538

Dey, I., Majid Butt, M., and Marchetti, N., Throughput Analysis for Virtual MIMO WSNs Over Measured MIMO Channels; *TIM Jan. 2019* 297-299

Di Benedetto, M., see Sabatini, V., TIM Oct. 2019 3972-3982

Di Cara, D., see Cataliotti, A., TIM Feb. 2019 430-438

Di Cara, D., see Cataliotti, A., TIM May 2019 1322-1332

Di Giuseppe, D., see Callari, G., TIM July 2019 2425-2432

**Di Giuseppe, D.,** see Casti, P., TIM July 2019 2442-2450

Di Lorenzo, G., see Gugliandolo, G., TIM May 2019 1451-1457

Di Marco, M., see Addabbo, T., TIM July 2019 2363-2373

Di Natale, C., see Callari, G., TIM July 2019 2425-2432

Di Virgilio, A., see Donazzan, A., TIM April 2019 1165-1177

Diab, A., see Daher, M., TIM Nov. 2019 4590-4599

Diaz, J., see Jimenez-Lopez, M., TIM Feb. 2019 632-641

Diez, L.E., see Otegui, J., TIM Jan. 2019 269-279

Ding, H., see Yue, C., TIM March 2019 688-692

Ding, H., see Wang, C., TIM April 2019 1053-1061

Ding, X., He, Q., Shao, Y., and Huang, W., Transient Feature Extraction Based on Time–Frequency Manifold Image Synthesis for Machinery Fault Diagnosis; *TIM Nov. 2019* 4242-4252

Ding, Z., see Li, Z., TIM April 2019 1132-1139

Dirik, H., Duran, I.U., and Gezegin, C., A Computation and Metering Method for Harmonic Emissions of Individual Consumers; TIM Feb. 2019 412-420

Djokic, B., and Parks, H., A Synchronized Current-Comparator Bridge for the Calibration of Analog Merging Units; TIM June 2019 1955-1960

Djokic, S.Z., see Collin, A.J., TIM Oct. 2019 3883-3891

Djordjevic, S., see Allal, D., TIM June 2019 1652

Dobre, O.A., see Eldemerdash, Y.A., TIM Feb. 2019 642-644

Dobre, O.A., see Gupta, R., TIM Aug. 2019 3020-3031

Docchio, F., see Pasinetti, S., TIM Nov. 2019 4456-4471

Dollevoet, R., see Wang, H., TIM Oct. 2019 3536-3547

**Donato, N.,** see Hemalatha, T., TIM March 2019 903-912

**Donato, N.,** see Gugliandolo, G., TIM May 2019 1451-1457

Donazzan, A., Naletto, G., Belfi, J., Cuccato, D., Corso, A.J., Di Virgilio, A., Ortolan, A., and Pelizzo, M.G., Characterization of a Nanometer Displacement Gauge for the Dimensional Control of Large Optomechanical Structures; TIM April 2019 1165-1177

Dong, F., see Ren, S., TIM March 2019 762-773

Dong, F., see Xiao, Z., TIM July 2019 2460-2468

Dong, F., see Tan, C., TIM May 2019 1590-1601

Dong, F., see Zhao, J., TIM Sept. 2019 3268-3277

Dong, J., see Yang, Y., TIM Dec. 2019 4618-4628

Dong, X., see Chen, S., TIM Aug. 2019 2755-2767

Donnell, K.M., see Foudazi, A., TIM Feb. 2019 576-585

Dorea, C.E.T., see Dos Santos Silva, F.J., TIM Nov. 2019 4493-4501

Dos Santos Silva, F.J., Catunda, S.Y.C., Dorea, C.E.T., Van Haandel, A.C., and Santos, H.R.D., Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems; TIM Nov. 2019 4493-4501

Drapela, J., see Collin, A.J., TIM Oct. 2019 3883-3891

Drazil, K., Grajciar, J., Pavlicek, T., Celep, M., and Hudlicka, M., Harmonics Effects on Microwave Power Measurement Using Diode Sensors; *TIM June* 2019 1852-1859

Drung, D., see Gotz, M., TIM June 2019 2027-2033

Drung, D., see Giblin, S.P., TIM June 2019 1996-2002

Drung, D., see Fan, I., TIM June 2019 2129-2135

Drung, D., see Scherer, H., TIM June 2019 1887-1894

Du, C., see Gao, S., TIM Dec. 2019 4887-4895

Du, C., Tang, Q., Zhou, J., Guo, X., Yu, T., and Wang, X., Fiber Optic Sensors Based on Photoacoustic Effect for Rebar Corrosion Measurement; *TIM Nov.* 2019 4559-4565

Duan, C., see Deng, H., TIM Oct. 2019 3950-3961

Duarte, L.C., see de Morais Franca, M.B., TIM Feb. 2019 606-613

Dummer, A., see Marshall, C., TIM Feb. 2019 533-546

Duran, I.U., see Dirik, H., TIM Feb. 2019 412-420

Durand, M., see Wang, Y., TIM June 2019 1895-1900

Dutta, L., see Hazarika, A., TIM July 2019 2498-2506

Dutta, P.K., see Bhaskarrao, N.K., TIM July 2019 2570-2578

Dvorecki, N., see Banin, L., TIM Oct. 2019 3686-3698

E

Eberhardt, J., see Pasinetti, S., TIM Nov. 2019 4456-4471

Eckersley, R.J., see Baker, C., TIM Oct. 2019 3920-3931

Edwards, S., see Waltrip, B., TIM June 2019 2187-2194

Eichberger, B., see Schuss, C., TIM May 2019 1485-1493

El Badaoui El Najjar, M., see Al Hage, J., TIM Aug. 2019 2988-2995

El Badaoui El Najjar, M., see Daher, M., TIM Nov. 2019 4590-4599

El-Sheimy, N., see Radi, A., TIM Dec. 2019 4924-4936

Eldemerdash, Y.A., Dobre, O.A., Ureten, O., and Yensen, T., A Robust Modulation Classification Method for PSK Signals Using Random Graphs; *TIM Feb.* 2019 642-644

Elhajj, I.H., see Saleh, M., TIM July 2019 2635-2647

Elmquist, R.E., see Rigosi, A.F., TIM June 2019 1870-1878

Engel, A., see Sheinker, A., TIM Jan. 2019 116-128

Erkan, O., Gulmez, Y., Hayirli, C., Gulmez, G., and Turhan, E., Reference Ultralow DC Current Source Between 1 fA and 100 pA at TÜBİTAK UME; *TIM June* 2019 2201-2207

Escudero, J., see Tan, C., TIM May 2019 1590-1601

Espinosa, R.L., see Maigler, M.V., TIM Sept. 2019 3193-3199

Esquef, P.A.A., see Martins, M.B., TIM June 2019 2007-2014

Estebsari, A., see Pau, M., TIM Nov. 2019 4300-4312

F

Fabiano dos Santos, J.C., Pinheiro, P.P., Franca, J.A.d., Recovering of Corrupted Ultrasonic Waves, for Determination of TOF Using the Zero-Crossing Detection Technique; TIM Nov. 2019 4234-4241

Fabritius, T., see Schuss, C., TIM May 2019 1485-1493

Fadda, M.G., see Chen, Y., TIM May 2019 1333-1342

Faifer, M., Laurano, C., Ottoboni, R., Toscani, S., and Zanoni, M., Behavioral Representation of a Bridge Rectifier Using Simplified Volterra Models; TIM May 2019 1611-1618

Faifer, M., Mazza, P., Laurano, C., Ottoboni, R., Toscani, S., Zanoni, M., Crotti, G., Giordano, D., Barbieri, L., and Gondola, M., Overcoming Frequency Response Measurements of Voltage Transformers: An Approach Based on Quasi-Sinusoidal Volterra Models; TIM Aug. 2019 2800-2807

Faifer, M., see Cristaldi, L., TIM Aug. 2019 2792-2799

Faifer, M., Laurano, C., Ottoboni, R., Toscani, S., and Zanoni, M., Harmonic Distortion Compensation in Voltage Transformers for Improved Power Quality Measurements; TIM Oct. 2019 3823-3830

Fan, I., Behr, R., Drung, D., Krause, C., Gotz, M., Pesel, E., and Scherer, H., Externally Referenced Current Source With Stability Down to 1 nA/A at 50 mA; TIM June 2019 2129-2135

Fan, J., see Wang, J., TIM March 2019 882-894

Fan, J., see Chen, X., TIM Dec. 2019 4612-4614

Fan, J., see Wang, J., TIM Aug. 2019 3042-3044

Fan, J., see Jin, X., TIM Sept. 2019 3128-3136

Fang, Y., see Gao, H., TIM Nov. 2019 4427-4442

Fanzeres, B., see Saavedra, R., TIM Oct. 2019 4162-4174

Faria, V.N.R., see Arencibia, R.V., TIM Dec. 2019 4798-4806

Fatehi, A., see Salehi, Y., TIM Oct. 2019 3983-3991

Fatikow, S., see Li, H., TIM March 2019 782-790

Faverio, C., see Slomovitz, D., TIM June 2019 2136-2143

Fedrizzi, M., see Siebert, J., TIM Sept. 2019 3100-3108

Femine, A.D., see Cataliotti, A., TIM May 2019 1322-1332

Femine, A.D., see Crotti, G., TIM June 2019 1724-1731

Femine, A.D., see Crotti, G., TIM Oct. 2019 3861-3870

Femine, A.D., see Collin, A.J., TIM Oct. 2019 3841-3849

Feng, B., Pasadas, D.J., Ribeiro, A.L., and Ramos, H.G., Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks; *TIM May 2019 1252-1260* 

Fernandez, M., Guerra, D., Gil, U., Pena, I., and Arrinda, A., Measurement Methodology for Determining the Optimal Frequency Domain Configuration to Accurately Record WiFi Exposure Levels; TIM Feb. 2019 547-557

Ferrari, P., see Rinaldi, S., TIM March 2019 693-703

Ferrari, P., see Rizzi, M., TIM April 2019 1101-1111

Ferrari, P., see Rinaldi, S., TIM Oct. 2019 3831-3840

Ferrero, A., Ferrero, R., Jiang, W., and Salicone, S., The Kalman Filter Uncertainty Concept in the Possibility Domain; *TIM Nov.* 2019 4335-4347

Ferrero, R., see Iannucci, L., TIM May 2019 1424-1431

Ferrero, R., see Castello, P., TIM May 2019 1313-1321

Ferrero, R., and Sulis, S., Guest Editors' Foreword Special Section on the 2018 IEEE International Workshop on Applied Measurements for Power Systems (AMPS 2018) Bologna, Italy, September 26–28, 2018; TIM Oct. 2019 3799-3800

Ferrero, R., see Ferrero, A., TIM Nov. 2019 4335-4347

Ferretti, G., see Addabbo, T., TIM July 2019 2363-2373

Ferrigno, L., see Bernieri, A., TIM May 2019 1533-1542

Ferrigno, L., see Capriglione, D., TIM May 2019 1302-1312

Fessler, J.T., see Whitney, A.M., TIM Sept. 2019 3329-3338

Fhager, A., see Zeng, X., TIM Aug. 2019 2880-2889

Fiorillo, C., see Addabbo, T., TIM July 2019 2412-2424

Flammini, A., see Rinaldi, S., TIM March 2019 693-703

Flammin, A., see Rizzi, M., TIM April 2019 1101-1111

Flammini, A., see Rinaldi, S., TIM Oct. 2019 3831-3840

Flatscher, M., see Neumayer, M., TIM May 2019 1402-1411

**Flatscher, M.,** see Neumayer, M., TIM May 2019 1458-1466

Fontanelli, D., see Magnago, V., TIM Nov. 2019 4443-4455

Forrest, B.E., see Carrigan, T.D., TIM Feb. 2019 586-594

Fort, A., see Addabbo, T., TIM March 2019 837-844

Fort, A., see Addabbo, T., TIM July 2019 2412-2424

Fort, A., see Addabbo, T., TIM July 2019 2469-2478

Fort, A., see Addabbo, T., TIM July 2019 2363-2373

Foudazi, A., Mirala, A., Ghasr, M.T., and Donnell, K.M., Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures; *TIM Feb.* 2019 576-585

Franca, J.A.d., see Fabiano dos Santos, J.C., TIM Nov. 2019 4234-4241

Franchi, F., see Addabbo, T., TIM July 2019 2469-2478

Frank, F., see Xu, D., TIM June 2019 2195-2200

Frattini, G., see Giannelli, P., TIM Feb. 2019 368-376

Freeborn, T.J., see Nelson, B.W., TIM Jan. 2019 129-137 Freire, R.C.S., see Vitorino, B.A.F., TIM March 2019 774-781

Frigo, G., see Galli, A., TIM July 2019 2433-2441

Frigo, G., Derviskadic, A., Zuo, Y., and Paolone, M., PMU-Based ROCOF Measurements: Uncertainty Limits and Metrological Significance in Power System Applications; TIM Oct. 2019 3810-3822

Frigo, G., Derviskadic, A., and Paolone, M., Reduced Leakage Synchrophasor Estimation: Hilbert Transform Plus Interpolated DFT; TIM Oct. 2019 3468-

Frimmer, M., see Liao, J., TIM July 2019 2374-2386

Fu, L., see Ren, M., TIM April 2019 1148-1156

Fu, N., Cao, J., Huang, G., Wei, Z., and Qiao, L., Parameter Measurement of M-Ary PSK Signals With Finite Rate of Innovation; TIM May 2019 1271-

Fu, Y., see Zhang, F., TIM Sept. 2019 3184-3192

Fu, Z., see Qian, L., TIM June 2019 1973-1981

Fu, Z., see Wang, Y., TIM June 2019 1895-1900

Fujii, K., see Kuramoto, N., TIM June 2019 1913-1920

Fujii, K., see Mizushima, S., TIM June 2019 1879-1886

Fujiki, H., Amagai, Y., and Okawa, K., Establishment of High-Voltage AC-DC Voltage Transfer Standards in 1-100-kHz Range at NMIJ; TIM June 2019

Fujiki, H., see Amagai, Y., TIM June 2019 1907-1912

Fujita, K., see Kuramoto, N., TIM June 2019 1913-1920

Fukuda, D., see Hattori, K., TIM June 2019 2253-2259

Fukuda, J., see Oho, S., TIM July 2019 2335-2345

Funck, T., Spiegel, T., and Ihring, A., Planar Multijunction Thermal Converters With Increased Sensitivity Operated in Hermetically Sealed Housings Filled With Noble Gas; TIM June 2019 2003-2006

Gadola, M., see Galli, A., TIM July 2019 2433-2441

Gaggero, M., see Cataliotti, A., TIM Feb. 2019 430-438

Galin, M.A., see Khorshev, S.K., TIM June 2019 2113-2120

Galli, A., Frigo, G., Chindamo, D., Depari, A., Gadola, M., and Giorgi, G., Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races; TIM July 2019 2433-2441

Gallo, D., see Cataliotti, A., TIM May 2019 1322-1332

Gallo, D., see Crotti, G., TIM June 2019 1724-1731

Gallo, D., see Crotti, G., TIM Oct. 2019 3861-3870

Gallo, D., see Crotti, G., TIM Oct. 2019 3850-3860

Gallo, D., see Collin, A.J., TIM Oct. 2019 3841-3849 Gallop, J.C., see Hao, L., TIM June 2019 1827-1832

Gan, J., see Yu, H., TIM March 2019 656-666

Ganesan, H., George, B., and Aniruddhan, S., Design and Analysis of a Relaxation Oscillator-Based Interface Circuit for LVDT; TIM May 2019 1261-

Gao, C., see Wang, Q., TIM July 2019 2552-2559

Gao, C., Qi, B., Gao, Y., Zhu, Z., and Li, C., Kerr Electro-Optic Sensor for Electric Field in Large-Scale Oil-Pressboard Insulation Structure; TIM Oct.

Gao, G., see Huang, W., TIM Aug. 2019 2819-2829

Gao, H., Zhang, X., Yuan, J., Song, J., and Fang, Y., A Novel Global Localization Approach Based on Structural Unit Encoding and Multiple Hypothesis Tracking; TIM Nov. 2019 4427-4442

Gao, J., Deng, B., Qin, Y., Li, X., and Wang, H., Point Cloud and 3-D Surface Reconstruction Using Cylindrical Millimeter-Wave Holography; TIM Dec. 2019 4765-4778

Gao, N., see Bai, X., TIM Sept. 2019 3287-3298

Gao, Q., see Xu, H., TIM June 2019 1781-1787

Gao, S., Shang, F., and Du, C., Design of Multichannel and Multihop Low-Power Wide-Area Network for Aircraft Vibration Monitoring; TIM Dec. 2019 4887-4895

Gao, S., see Kang, G., TIM Aug. 2019 2679-2690

Gao, W., see Li, J., TIM Sept. 2019 3278-3286

Gao, Y., Ghasr, M.T., Nacy, M., and Zoughi, R., Towards Accurate and Wideband In Vivo Measurement of Skin Dielectric Properties; TIM Feb. 2019 512-524

Gao, Y., see Gao, C., TIM Oct. 2019 3626-3634

Gao, Z., Li, S., Cai, Q., Dang, W., Yang, Y., Mu, C., and Hui, P., Relative Wavelet Entropy Complex Network for Improving EEG-Based Fatigue Driving Classification; TIM July 2019 2491-2497

Garcia, J.E., see Sunol, F., TIM Aug. 2019 2724-2732

Garcia-Bosque, M., see Perez-Resa, A., TIM Dec. 2019 4876-4886

Garcia-Bosque, M., Perez-Resa, A., Sanchez-Azqueta, C., Aldea, C., and Celma, S., Chaos-Based Bitwise Dynamical Pseudorandom Number Generator On FPGA; TIM Jan. 2019 291-293

Garcia-Bracamonte, J.E., Ramirez-Cortes, J.M., de Jesus Rangel-Magdaleno, J., Gomez-Gil, P., Peregrina-Barreto, H., and Alarcon-Aquino, V., An Approach on MCSA-Based Fault Detection Using Independent Component Analysis and Neural Networks; TIM May 2019 1353-1361

Garcia-Ruiz, I., see Botello-Perez, M., TIM Feb. 2019 558-565

Gaydecki, P., see Xie, W., TIM Nov. 2019 4472-4480

Gazivoda, N., see Urekar, M., TIM June 2019 1705-1713

Ge, J., see Zhou, X., TIM Nov. 2019 4253-4267

Geng, Y., see Yu, H., TIM March 2019 656-666

Georgakopoulos, D., Budovsky, I., and Benz, S.P., AC Voltage Measurements to 120 V With a Josephson Arbitrary Waveform Synthesizer and an Inductive Voltage Divider; TIM June 2019 1935-1940

Georgakopoulos, D., Budovsky, I., Benz, S.P., and Gubler, G., Josephson Arbitrary Waveform Synthesizer as a Reference Standard for the Measurement of the Phase of Harmonics in Distorted Waveforms; TIM June 2019 1927-1934

George, B., see Khan, A.U., TIM March 2019 829-836

George, B., see Gunasekaran, V., TIM April 2019 1080-1088

George, B., see Ganesan, H., TIM May 2019 1261-1270

George, B., see Tejaswini, K.K., TIM May 2019 1602-1610

George, B., see Shenil, P.S., TIM Oct. 2019 3899-3906

Gertsvolf, M., and Granger, G., Calibration of Gigahertz Microwave Generator for the Programmable Josephson Voltage Standard at NRC; TIM June 2019 1901-1906

Gezegin, C., see Dirik, H., TIM Feb. 2019 412-420

Ghaderi, A., Mingotti, A., Peretto, L., and Tinarelli, R., Effects of Mechanical Pressure on the Tangent Delta of MV Cable Joints; TIM July 2019 2656-

Ghaderi, A., Mingotti, A., Lama, F., Peretto, L., and Tinarelli, R., Effects of Temperature on MV Cable Joints Tan Delta Measurements; TIM Oct. 2019 3892-3898

Ghanem, M., see Al Kalaa, M.O., TIM Feb. 2019 325-333

Gharehpetian, G.B., see Tabarsa, H., TIM Aug. 2019 2934-2942

Ghasr, M.T., see Horst, M.J., TIM Jan. 2019 151-159

Ghasr, M.T., see Gao, Y., TIM Feb. 2019 512-524

Ghasr, M.T., see Foudazi, A., TIM Feb. 2019 576-585

Ghasr, M.T., see Laviada, J., TIM April 2019 1112-1119

Ghasr, M.T., see Horst, M.J., TIM Nov. 2019 4400-4411

Ghorai, S., see Saha, P., TIM Sept. 2019 3046-3053 Ghosh, S., see Kumar, M.R., TIM Dec. 2019 4834-4844

Giannelli, P., Calabrese, G., Frattini, G., Granato, M., and Capineri, L., A Buffered Single-Supply Charge Amplifier for High-Impedance Piezoelectric Sensors; TIM Feb. 2019 368-376

Giblin, S.P., Drung, D., Gotz, M., and Scherer, H., Interlaboratory Nanoamp Current Comparison With Subpart-Per-Million Uncertainty; TIM June 2019

Gibson, C., see Haigh, S., TIM March 2019 646-655

Gidlund, M., see Nikonowicz, J., TIM Jan. 2019 105-115

Gil, U., see Fernandez, M., TIM Feb. 2019 547-557

Ginzburg, B., see Sheinker, A., TIM Jan. 2019 116-128

Giordano, D., see Cataliotti, A., TIM May 2019 1322-1332

Giordano, D., see Crotti, G., TIM June 2019 1724-1731

Giordano, D., see Faifer, M., TIM Aug. 2019 2800-2807

Giordano, D., see Crotti, G., TIM Oct. 2019 3861-3870

Giordano, D., see Crotti, G., TIM Oct. 2019 3850-3860

Giorgi, G., see Galli, A., TIM July 2019 2433-2441

Giri, P., Ng, K., and Phillips, W., Wireless Sensor Network System for Landslide Monitoring and Warning; TIM April 2019 1210-1220

Goel, S., see S. B., P., TIM July 2019 2648-2655

Goldfarb, R., see Allal, D., TIM June 2019 1652

Gomez-Gil, P., see Garcia-Bracamonte, J.E., TIM May 2019 1353-1361

Gomez-Mendoza, J.B., see Cortes-Osorio, J.A., TIM Oct. 2019 4038-4050

Gondola, M., see Faifer, M., TIM Aug. 2019 2800-2807

Gonzalez-Briceno, G., Medow, J.E., Ortega-Cisneros, S., Lorias-Espinoza, D., Minor-Martinez, A., and Webster, J.G., Design and Evaluation of a USB Isolator for Medical Instrumentation; *TIM March 2019 797-806* 

Gonzalez-Chavez, O., Cardenas-Garcia, D., Karaman, S., Lizarraga, M., and Salas, J., Radiometric Calibration of Digital Counts of Infrared Thermal Cameras; TIM Nov. 2019 4387-4399

Gorecki, K., Gorecki, P., and Zarebski, J., Measurements of Parameters of the Thermal Model of the IGBT Module; *TIM Dec. 2019 4864-4875* 

Gorecki, P., see Gorecki, K., TIM Dec. 2019 4864-4875

Gotz, M., Drung, D., Krause, C., Becker, U., and Scherer, H., Calibrating Ultrastable Low-Noise Current Amplifiers of the Second Generation With a Cryogenic Current Comparator; TIM June 2019 2027-2033

Gotz, M., see Giblin, S.P., TIM June 2019 1996-2002

Gotz, M., see Fan, I., TIM June 2019 2129-2135

Gotz, M., see Scherer, H., TIM June 2019 1887-1894

Gou, B., and Cheng, Y., INS/CNS Integrated Navigation Based on Corrected Infrared Earth Measurement; TIM Sept. 2019 3358-3366

Goubran, R., see Howcroft, J., TIM July 2019 2451-2459

Grajciar, J., see Drazil, K., TIM June 2019 1852-1859

Granato, M., see Giannelli, P., TIM Feb. 2019 368-376

Granger, G., see Gertsvolf, M., TIM June 2019 1901-1906

Grassini, S., see Lombardo, L., TIM July 2019 2396-2403

Grassini, S., see Scalise, L., TIM July 2019 2394-2395

Grassini, S., see Iannucci, L., TIM May 2019 1424-1431

Graziani, S., see Ando, B., TIM May 2019 1637-1646

Graziani, S., see Cennamo, N., TIM May 2019 1582-1589

Graziani, S., see Ando, B., TIM May 2019 1477-1484

Green, J.E., see Harrison, H.T., TIM Sept. 2019 3151-3165

Grimaldi, D., see Carni, D.L., TIM April 2019 980-986

Gross, M., see Liao, J., TIM July 2019 2374-2386

Gryaznov, Y.M., see Khorshev, S.K., TIM June 2019 2113-2120

Grzenik, M., and Kampik, M., Determination of Frequency-Independent Component of AC–DC Transfer Difference of SUT Calculable AC Voltage Standards; TIM May 2019 1515-1521

Grzenik, M., and Kampik, M., Determination of AC–DC Transfer Difference of Calculable Thermal Voltage Converters in 1–30-MHz Frequency Range; TIM June 2019 2072-2077

Gu, D., Lu, X., Jamroz, B.F., Williams, D.F., Cui, X., and Sanders, A.W., NIST-Traceable Microwave Power Measurement in a Waveguide Calorimeter With Correlated Uncertainties; TIM June 2019 2280-2287

Gu, D., and Jenkins, J.E., Noise Synthesis Technique in Time Domain for Metrology Application; TIM June 2019 2288-2294

Gu, F., Khoshelham, K., Yu, C., and Shang, J., Accurate Step Length Estimation for Pedestrian Dead Reckoning Localization Using Stacked Autoencoders; TIM Aug. 2019 2705-2713

Gu, H., see Wang, F., TIM July 2019 2671-2673

Gu, K., see Yue, G., TIM Oct. 2019 3962-3971

Gu, X., and Cegla, F., The Effect of Internal Pipe Wall Roughness on the Accuracy of Clamp-On Ultrasonic Flowmeters; TIM Jan. 2019 65-72

Gu, Z., Wang, J., Shen, F., Xu, K., Ye, D., Huangfu, J., Li, C., and Ran, L., Blind Separation of Doppler Human Gesture Signals Based on Continuous-Wave Radar Sensors; TIM July 2019 2659-2661

Guan, S., Wang, Y., and Chen, X., An Approach of Single-Crystal Defect Detection Using X-Ray Orientation Instrument; TIM Oct. 2019 4122-4134

Gubler, G., see Georgakopoulos, D., TIM June 2019 1927-1934

Guerra, D., see Fernandez, M., TIM Feb. 2019 547-557

Guerrier, S., see Radi, A., TIM Dec. 2019 4924-4936

Gugliandolo, G., Campobello, G., Capra, P.P., Marino, S., Bramanti, A., Di Lorenzo, G., and Donato, N., A Movement-Tremors Recorder for Patients of Neurodegenerative Diseases; TIM May 2019 1451-1457

Gui, K., see Carrigan, T.D., TIM Feb. 2019 586-594

Gui, W., see Pan, D., TIM Oct. 2019 3576-3588

Guillory, J., Teyssendier de la Serve, M., Truong, D., Alexandre, C., and Wallerand, J., Uncertainty Assessment of Optical Distance Measurements at

Micrometer Level Accuracy for Long-Range Applications; *TIM June 2019* 2260-2267

Gulmez, G., see Erkan, O., TIM June 2019 2201-2207

Gulmez, Y., see Erkan, O., TIM June 2019 2201-2207

Gunasekaran, V., George, B., Aniruddhan, S., Janardhanan, D.D., and Palur, R.V., Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT; TIM April 2019 1080-1088

Guo, C., see Liu, L., TIM Jan. 2019 225-233

Guo, S., see Hu, C., TIM Oct. 2019 3733-3739

Guo, X., see Du, C., TIM Nov. 2019 4559-4565

Guo, Y., see Ma, C., TIM Jan. 2019 38-48

Guo, Y., see Ma, X., TIM Oct. 2019 3801-3809

Gupta, G.S., and Bilas, V., Special Section on Sensors Applications Symposium; TIM July 2019 2333-2334

Gupta, G.S., see Alam, F., TIM Aug. 2019 2714-2723

Gupta, R., Majhi, S., and Dobre, O.A., Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems; TIM Aug. 2019 3020-3031

Gutierrez-Rivas, J.L., see Jimenez-Lopez, M., TIM Feb. 2019 632-641

Н

Haddad, D., see Chao, L., TIM June 2019 2176-2182

Hadler, J.A., see Williams, P.A., TIM June 2019 1833-1839

Hage, J.A., see Daher, M., TIM Nov. 2019 4590-4599

Haghjoo, F., see Soleimani, Y., TIM Aug. 2019 2916-2925

Haigh, S., Kulon, J., Partlow, A., Rogers, P., and Gibson, C., A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems; *TIM March* 2019 646-655

Hale, S., see Marshall, C., TIM Feb. 2019 533-546

Hallstrom, J., see Havunen, J., TIM June 2019 2034-2040

Hamelmann, P., Vullings, R., Mischi, M., Kolen, A.F., Schmitt, L., and Bergmans, J.W.M., An Extended Kalman Filter for Fetal Heart Location Estimation During Doppler-Based Heart Rate Monitoring; *TIM Sept. 2019 3221-2331* 

Hamilton, S.J., see Mellenthin, M.M., TIM Sept. 2019 3137-3150

Hammarstrom, T.J.A., Multilevel PWM: A Tool to Explore Insulation PD Characteristics; TIM Oct. 2019 4075-4084

Han, B., see Zhangd, Y.-N., TIM Nov. 2019 4566-4574

Han, S., see Choi, U., TIM Dec. 2019 4615-4617

Han, X., Li, J., Zhang, L., Pang, P., and Shen, S., A Novel PD Detection Technique for Use in GIS Based on a Combination of UHF and Optical Sensors; TIM Aug. 2019 2890-2897

Han, Y., see Zhong, J., TIM Aug. 2019 2849-2860

Han, Z., see Zhong, J., TIM Aug. 2019 2849-2860

Hang, J., see Lu, S., TIM March 2019 741-753

Hao, L., Gallop, J.C., and Chen, J., Electromagnetic Metrology for Nano- Electromechanical Systems; TIM June 2019 1827-1832

Hara, M., see Oho, S., TIM July 2019 2335-2345

Harpe, P.J.A., see Xu, L., TIM Oct. 2019 4085-4093

Harris, N.R., see Hu, N., TIM May 2019 1432-1440

Harrison, H.T., Stone, D.A., and Green, J.E., Practical Current Distribution Measurement Systems for Lead Cells; TIM Sept. 2019 3151-3165

Hartman, M.T., Battesti, R., and Rizzo, C., Characterization of the Vacuum Birefringence Polarimeter at BMV: Dynamical Cavity Mirror Birefringence; TIM June 2019 2268-2273

Harvey, J., Campbell, J., and Adler, A., Characterization of Biometric Template Aging in a Multiyear, Multivendor Longitudinal Fingerprint Matching Study; TIM April 2019 1071-1079

Hassan, M.M., see Pasinetti, S., TIM Nov. 2019 4456-4471

Hattori, K., Inoue, S., Kobayashi, R., Niwa, K., Numata, T., and Fukuda, D., Optical Transition-Edge Sensors: Dependence of System Detection Efficiency on Wavelength; *TIM June 2019 2253-2259* 

Havunen, J., and Hallstrom, J., Application of Charge-Sensitive Preamplifier for the Calibration of Partial Discharge Calibrators Below 1 pC; TIM June 2019 2034-2040

Hayirli, C., see Erkan, O., TIM June 2019 2201-2207

Hazarika, A., Dutta, L., Barthakur, M., and Bhuyan, M., A Multiview Discriminant Feature Fusion-Based Nonlinear Process Assessment and Diagnosis: Application to Medical Diagnosis; *TIM July 2019 2498-2506* 

He, C., see Li, N., TIM Oct. 2019 3548-3562

He, H., see Li, J., TIM Sept. 2019 3173-3183

He, Q., see Ouyang, K., TIM May 2019 1238-1251

He, Q., see Zhao, J., TIM June 2019 1961-1966

He, Q., see Bai, Y., TIM June 2019 2237-2245

He, Q., see Huang, L., TIM June 2019 2144-2150

He, Q., see Shi, Z., TIM June 2019 2053-2059

He, Q., see Li, Z., TIM June 2019 2208-2214

He, Q., Meng, H., Hu, Z., and Xie, Z., Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux; TIM Oct. 2019 3456-3467

He, Q., see Ding, X., TIM Nov. 2019 4242-4252

He, Y., see Luo, Q., TIM March 2019 667-679

He, Y., see Wang, T., TIM March 2019 818-828

He, Y., see Chen, X., TIM Dec. 2019 4612-4614

He, Y., Peng, Y., Wang, S., and Liu, D., ADMOST: UAV Flight Data Anomaly Detection and Mitigation via Online Subspace Tracking; TIM April 2019 1035-1044

He, Y., see Shi, L., TIM Sept. 2019 3244-3252

Hehn, M., Sippel, E., Carlowitz, C., and Vossiek, M., High-Accuracy Localization and Calibration for 5-DoF Indoor Magnetic Positioning Systems; TIM Oct. 2019 4135-4145

Hejazi, M.A., see Tabarsa, H., TIM Aug. 2019 2934-2942

Hemalatha, T., Akilandeswari, S., Krishnakumar, T., Leonardi, S.G., Neri, G., and Donato, N., Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors; TIM March 2019 903-912

Heremans, J., see Sola, A., TIM June 2019 1765-1773

Hesabgar, S.M., Jafari, R., and Samani, A., Accurate Technique for Electrical Permittivity Measurement of Biological Tissue Specimens at Low Frequencies; TIM July 2019 2479-2490

Hesari, S.H., see Yuan, S., TIM Aug. 2019 2871-2879

Hibbert, J.E., see Carrigan, T.D., TIM Feb. 2019 586-594

Hirano, I., see Horibe, M., TIM June 2019 1774-1780

Hirose, M., see Matsukawa, S., TIM June 2019 1756-1764

Ho, W.K., see Sun, L., TIM Feb. 2019 421-429

Hoffman, J., see Waters, D.H., TIM Feb. 2019 595-605

Hoffmann, A., see Sola, A., TIM June 2019 1765-1773

Hoflinger, F., see Karacocuk, G., TIM Nov. 2019 4268-4275

Holgado, M., see Maigler, M.V., TIM Sept. 2019 3193-3199

Hong, F., see Wada, M., TIM June 2019 2246-2252

Hong, K., Wang, L., and Xu, S., A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings; TIM April 2019 1221-1229

Hong, Y., Kim, M., Lee, H., Park, J.J., and Lee, D., Early Fault Diagnosis and Classification of Ball Bearing Using Enhanced Kurtogram and Gaussian Mixture Model; TIM Dec. 2019 4746-4755

Hoogenboom, D., see Rietveld, G., TIM June 2019 1732-1739

Horibe, M., see Kato, Y., TIM June 2019 1788-1795

Horibe, M., see Kato, Y., TIM June 2019 1796-1805

Horibe, M., see Sakamaki, R., TIM June 2019 1748-1755

Horibe, M., Kon, S., and Hirano, I., Measurement Capability of Scanning Microwave Microscopy: Measurement Sensitivity Versus Accuracy; TIM June 2019 1774-1780

Hornecker, R., see Ireland, J., TIM June 2019 2066-2071

Hornecker, R., see Houtzager, E., TIM June 2019 1653-1658

Hornecker, R., see van den Brom, H.E., TIM June 2019 2084-2090

Horst, M.J., Ghasr, M.T., and Zoughi, R., Effect of Instrument Frequency Uncertainty on Wideband Microwave Synthetic Aperture Radar Images; TIM Jan. 2019 151-159

Horst, M.J., Ghasr, M.T., and Zoughi, R., Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems; TIM Nov. 2019 4400-4411

Hosaka, K., see Wada, M., TIM June 2019 2246-2252

Hou, C., see Yue, G., TIM Aug. 2019 2733-2741

Houtzager, E., see Ireland, J., TIM June 2019 2066-2071

**Houtzager, E.,** Hornecker, R., and Rietveld, G., Compact Distributed Digitizers With Metrological Precision; *TIM June 2019 1653-1658* 

Houtzager, E., see Rietveld, G., TIM June 2019 1732-1739

Howcroft, J., Wallace, B., Goubran, R., Marshall, S., Porter, M.M., and Knoefel, F., Trip-Based Measures of Naturalistic Driving: Considerations and Connections With Cognitive Status in Older Adult Drivers; TIM July 2019 2451-2459

Hu, C., see Dai, H., TIM Sept. 2019 3379-3386

Hu, C., Li, N., Chen, W., and Guo, S., A Near-Field to Far-Field RCS Measurement Method for Multiple-Scattering Target; TIM Oct. 2019 3733-3739

Hu, H., see Wang, F., TIM July 2019 2671-2673

Hu, H., see Qiu, Z., TIM Jan. 2019 27-37

Hu, J., see Rigosi, A.F., TIM June 2019 1870-1878

Hu, N., Chappell, P.H., and Harris, N.R., Finger Displacement Sensing: FEM Simulation and Model Prediction of a Three-Layer Electrode Design; *TIM May 2019 1432-1440* 

Hu, P., see Bai, Y., TIM June 2019 2237-2245

Hu, P., see Li, Z., TIM June 2019 2208-2214

Hu, W., see Tang, D., TIM May 2019 1441-1450

Hu, Y., Zeng, Z., Liu, J., Wang, J., and Zhang, W., Design of a Distributed UHF Sensor Array System for PD Detection and Location in Substation; *TIM June* 2019 1844-1851

Hu, Z., see He, Q., TIM Oct. 2019 3456-3467

Huang, G., Taylor, B.K., and Akopian, D., A Low-Cost Approach of Magnetic Field-Based Location Validation for Global Navigation Satellite Systems; TIM Dec. 2019 4937-4944

Huang, G., see Fu, N., TIM May 2019 1271-1283

Huang, H., see Zheng, J., TIM Jan. 2019 206-214

Huang, J., Sheng, B., Ji, H., Huang, Z., Wang, B., and Li, H., A New Contactless Bubble/Slug Velocity Measurement Method of Gas-Liquid Two-Phase Flow in Small Channels; TIM Sept. 2019 3253-3267

Huang, J., see Zhu, C., TIM Nov. 2019 4600-4607

Huang, K., Zhang, X., and Karimi, N., Real-Time Prediction for IC Aging Based on Machine Learning; TIM Dec. 2019 4756-4764

Huang, K., see Tsai, H., TIM May 2019 1561-1574

Huang, L., Yang, Y., Lu, Z., Zhao, J., Wang, W., Lu, Y., Wang, J., and He, Q., Practical Application of Latest Optimal Hollow Active Auxiliary Electrode in Vertical Calculable Cross-Capacitor at NIM; TIM June 2019 2144-2150

Huang, M., Wei, Z., Pau, M., Ponci, F., and Sun, G., Interval State Estimation for Low-Voltage Distribution Systems Based on Smart Meter Data; TIM Sept. 2019 3090-3099

Huang, Q., see Khawaja, A.H., TIM Dec. 2019 4712-4722

Huang, Q., see Zhao, Z., TIM Sept. 2019 3200-3210

Huang, Q., see Sui, T., TIM Oct. 2019 3647-3660

Huang, S., Peng, L., Wang, Q., Wang, S., and Zhao, W., An Opening Profile Recognition Method for Magnetic Flux Leakage Signals of Defect; TIM June 2019 2229-2236

Huang, S., see Chen, L., TIM June 2019 1714-1723

Huang, S., see Zhuang, S., TIM June 2019 1671-1679

Huang, S., see Chen, L., TIM Sept. 2019 3054-3065

Huang, W., Gao, G., Li, N., Jiang, X., and Zhu, Z., Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis; TIM Aug. 2019 2819-2829

Huang, W., see Ding, X., TIM Nov. 2019 4242-4252

Huang, X., see Zhao, J., TIM June 2019 1961-1966

Huang, X., Yang, L., Zhang, Y., Zhu, Y., and Zhang, G., A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors; TIM Oct. 2019 4003-4014

Huang, Y., see Shi, L., TIM Sept. 2019 3244-3252

Huang, Z., see Huang, J., TIM Sept. 2019 3253-3267

Huangfu, J., see Gu, Z., TIM July 2019 2659-2661

Hudlicka, M., see Drazil, K., TIM June 2019 1852-1859

Hui, P., see Gao, Z., TIM July 2019 2491-2497

Hung, K., see Cheng, Y., TIM April 2019 952-962

Hwang, C., see Lin, C., TIM Aug. 2019 2830-2848

Hwang, C.H., see Rapuano, S., TIM May 2019 1235-1237

Hwang, J., Wang, X., Pathak, P., Rex, M.M., Cho, H.J., and Lee, W.H., Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode; *TIM July 2019 2387-2393* 

I

Iannucci, L., Parvis, M., Cristiani, P., Ferrero, R., Angelini, E., and Grassini, S., A Novel Approach for Microbial Corrosion Assessment; *TIM May 2019* 1424-1431

Ido, T., Past and Future of Optical Clocks Toward Redefinition of the SI Second; TIM June 2019 2183-2186

Iero, D., see Carotenuto, R., TIM July 2019 2507-2518

Ihring, A., see Funck, T., TIM June 2019 2003-2006

Iida, H., see Kinoshita, M., TIM June 2019 2274-2279

Iizuka, T., see Takahashi, D., TIM July 2019 2519-2530

Inaba, H., see Wada, M., TIM June 2019 2246-2252

Inaba, H., see Kuramoto, N., TIM June 2019 1913-1920

Inoue, S., see Hattori, K., TIM June 2019 2253-2259

Ireland, J., Williams, J., Kieler, O., Behr, R., Houtzager, E., Hornecker, R., and van den Brom, H.E., An Optoelectronic Pulse Drive for Quantum Voltage Synthesizer; *TIM June* 2019 2066-2071

Isaiev, V., see Velychko, O., TIM June 2019 1740-1747

Islam, S.K., see Yuan, S., TIM Aug. 2019 2871-2879

Islam, T., see Khan, A.U., TIM March 2019 829-836

Iula, A., and Nardiello, D., 3-D Ultrasound Palmprint Recognition System Based on Principal Lines Extracted at Several Under Skin Depths; *TIM Dec.* 2019 4653-4662

**Iyer, P.K.**, see Maharana, M., TIM Dec. 2019 4853-4863 **Izquierdo, D.**, see Slomovitz, D., TIM June 2019 2136-2143

J

Jackson, J.B., see Stone, T., TIM Aug. 2019 2979-2987

Jaeger, H.A., and Cantillon-Murphy, P., Electromagnetic Tracking Using Modular, Tiled Field Generators; TIM Dec. 2019 4845-4852

Jafari, R., see Hesabgar, S.M., TIM July 2019 2479-2490

Jain, V., see Liao, J., TIM July 2019 2374-2386

James, C.D., see Borna, A., TIM Feb. 2019 493-501

Jamroz, B.F., see Gu, D., TIM June 2019 2280-2287

Janardhanan, D.D., see Gunasekaran, V., TIM April 2019 1080-1088

Jardon-Aguilar, H., see Botello-Perez, M., TIM Feb. 2019 558-565

Jarrett, D.G., see Rigosi, A.F., TIM June 2019 1870-1878

Jeffery, A., see Wang, Y., TIM June 2019 1895-1900

Jenkins, J.E., see Gu, D., TIM June 2019 2288-2294

Jeong, H., see Zhang, S., TIM Oct. 2019 3635-3646

Ji, C., see Li, J., TIM Feb. 2019 623-631

Ji, H., see Huang, J., TIM Sept. 2019 3253-3267

Jia, G., see Zhang, S., TIM Dec. 2019 4817-4824

Jia, L., see Yu, H., TIM March 2019 656-666

Jia, Z., see Zhang, J., TIM Dec. 2019 4723-4735

**Jiang, C.,** see Yi, X., TIM Dec. 2019 4945-4953

Jiang, F., see Yu, Z., TIM May 2019 1543-1553

Jiang, K., see Xie, S., TIM Oct. 2019 3661-3676

Jiang, R., see Zhao, D., TIM Oct. 2019 3418-3432

Jiang, W., see Ferrero, A., TIM Nov. 2019 4335-4347

Jiang, X., see Wang, L., TIM Feb. 2019 450-461

Jiang, X., see Huang, W., TIM Aug. 2019 2819-2829

Jiang, Z., Zhang, D., and Lu, G., A Robust Wrist Pulse Acquisition System Based on Multisensor Collaboration and Signal Quality Assessment; TIM Dec. 2019 4807-4816

Jiang, Z., see Pan, D., TIM Oct. 2019 3576-3588

Jimenez-Lopez, M., Torres-Gonzalez, F., Gutierrez-Rivas, J.L., Rodriguez-Alvarez, M., and Diaz, J., A Fully Programmable White-Rabbit Node for the SKA Telescope PPS Distribution System; TIM Feb. 2019 632-641

Jin, H., see Sola, A., TIM June 2019 1765-1773

Jin, N., see Zhai, L., TIM Sept. 2019 3232-3243

Jin, X., see Zhang, S., TIM Dec. 2019 4817-4824

Jin, X., Fan, J., and Chow, T.W.S., Fault Detection for Rolling-Element Bearings Using Multivariate Statistical Process Control Methods; *TIM Sept.* 2019 3128-3136

Jin, Y., Shan, C., Wu, Y., Xia, Y., Zhang, Y., and Zeng, L., Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network; TIM April 2019 1026-1034

Jing, J., see Wang, Q., TIM Sept. 2019 3350-3357

Johnson, L., see Carrigan, T.D., TIM Feb. 2019 586-594

Johnstone, K., see Wright, P.S., TIM June 2019 1688-1695

Jones, G.R., see Rigosi, A.F., TIM June 2019 1870-1878

Jorda, X., see Perpina, X., TIM Aug. 2019 2861-2870

Jost, M., see Liao, J., TIM July 2019 2374-2386

Juan, C.G., Bronchalo, E., Potelon, B., Quendo, C., Avila-Navarro, E., and Sabater-Navarro, J.M., Concentration Measurement of Microliter-Volume Water-Glucose Solutions Using Q Factor of Microwave Sensors; TIM July 2019 2621-2634

Jungfleisch, M.B., see Sola, A., TIM June 2019 1765-1773

K

Kabiri, M., and Amjady, N., A New Hybrid State Estimation Considering Different Accuracy Levels of PMU and SCADA Measurements; TIM Sept. 2019 3078-3089

Kaczmarek, J., see Miroslaw, M., TIM June 2019 1806-1813

Kaczmarek, J., see Rybski, R., TIM June 2019 1821-1826

Kadechkar, A., Moreno-Eguilaz, M., Riba, J., and Capelli, F., Low-Cost Online Contact Resistance Measurement of Power Connectors to Ease Predictive Maintenance; TIM Dec. 2019 4825-4833

Kalavally, V., see Kashan, M.A.M., TIM Jan. 2019 303-305

Kalita, A., see Chakraborty, M., TIM Jan. 2019 189-196

Kampik, M., see Grzenik, M., TIM May 2019 1515-1521

Kampik, M., see Grzenik, M., TIM June 2019 2072-2077

**Kampik, M.,** see Rybski, R., TIM June 2019 1821-1826

Kampik, M., see Augustyn, J., TIM June 2019 1659-1665

Kaneko, N., see Amagai, Y., TIM June 2019 1907-1912 Kaneko, N., see Abe, T., TIM June 2019 2078-2083

Kaneko, Y., see Oho, S., TIM July 2019 2335-2345

Kang, G., Gao, S., Yu, L., and Zhang, D., Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning; TIM Aug. 2019 2679-2690

Kang, N., Kwon, J., Cho, C., and Park, J., Measurement System for Millimeter-Wave Antennas With Distributed External Local Oscillators and Mixers; TIM June 2019 1967-1972

Kao, I., Wang, W., Lai, Y., and Perng, J., Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning; TIM Feb. 2019 310-324

Karacocuk, G., Hoflinger, F., Zhang, R., Reindl, L.M., Laufer, B., Moller, K., Roell, M., and Zdzieblik, D., Inertial Sensor-Based Respiration Analysis; TIM Nov. 2019 4268-4275

Karaman, S., see Gonzalez-Chavez, O., TIM Nov. 2019 4387-4399

Karimi, N., see Huang, K., TIM Dec. 2019 4756-4764

Kariyappa, B.S., see Binu, D., TIM Jan. 2019 2-26

Kashan, M.A.M., Leong, A., Saha, T., Kalavally, V., Swamy, V., and Ramakrishnan, N., QCM-Micropillar-Based Coupled Resonators in the Detection of Gas Mass Flow Rates; TIM Jan. 2019 303-305

Kashiwagi, K., see Wada, M., TIM June 2019 2246-2252

Kassim, D.M., see Kim, D.B., TIM June 2019 1941-1947

Katkov, A.S., see Khorshev, S.K., TIM June 2019 2113-2120

Kato, Y., and Horibe, M., Improvement of Broadband Characterization of Dielectric Waveguide at the Ka-Band by Using TRL Calibration Method; TIM June 2019 1788-1795

Kato, Y., and Horibe, M., Broadband Permittivity Measurements up to 170-GHz Using Balanced-Type Circular-Disk Resonator Excited by 0.8-mm Coaxial Line; TIM June 2019 1796-1805

Kaur, R., see Sengupta, R., TIM June 2019 1814-1820

Kavehvash, Z., see Abbasi, M., TIM Sept. 2019 3339-3349

Kazimierczuk, M.K., see Luchetta, A., TIM Feb. 2019 439-449

Khalil, M.A., see Daher, M., TIM Nov. 2019 4590-4599

Khan, A.U., Islam, T., George, B., and Rehman, M., An Efficient Interface Circuit for Lossy Capacitive Sensors; TIM March 2019 829-836

Khawaja, A.H., Huang, Q., and Chen, Y., A Novel Method for Wide Range Electric Current Measurement in Gas-Insulated Switchgears With Shielded Magnetic Measurements; TIM Dec. 2019 4712-4722

Khorshev, S.K., Zhezlov, D.A., Katkov, A.S., Klushin, A.M., Pashkovsky, A.I., Subbotin, A.N., Rogozhkina, N.V., Gryaznov, Y.M., Levichev, M.Y., Pestov, E.E., Galin, M.A., and Maksimov, V.Y., Voltage Standard Based on Dry-Cooled High-Temperature Superconductor Josephson Junctions; TIM June 2019 2113-2120

Khoshakhlagh, M., and Masoumi, N., A Pigeonhole Principle-Based Method for Estimating the Resonant Frequency of SAWR Sensors; TIM Nov. 2019

Khoshelham, K., see Gu, F., TIM Aug. 2019 2705-2713

Kieler, O., see Ireland, J., TIM June 2019 2066-2071

Kieler, O., see Sira, M., TIM June 2019 2091-2099

Kikkawa, T., see Sola, A., TIM June 2019 1765-1773

Kim, D., Abu-Siada, A., and Sutinjo, A.T., Application of FRA to Improve the Design and Maintenance of Wireless Power Transfer Systems; TIM Nov. 2019 4313-4325

Kim, D.B., Kassim, D.M., Kim, W., Callegaro, L., D'Elia, V., Trinchera, B., Kucera, J., and Sedlacek, R., Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges; TIM June 2019 1941-

Kim, H., see Zhang, X., TIM March 2019 680-687

Kim, H., see Choi, U., TIM Dec. 2019 4615-4617

Kim, K., see Urbonas, J., TIM Aug. 2019 2971-2978

Kim, M., see Hong, Y., TIM Dec. 2019 4746-4755

Kim, M., see Shin, S., TIM April 2019 972-979

Kim, M.J., see Zhang, X., TIM March 2019 680-687

Kim, S., see Choi, B., TIM May 2019 1382-1388

Kim, W., see Kim, D.B., TIM June 2019 1941-1947

King, D.W., see Williams, P.A., TIM June 2019 1833-1839

Kinoshita, M., Tojima, Y., and Iida, H., Frequency Extension of Atomic Measurement of Microwave Strength Using Zeeman Effect; TIM June 2019 2274-2279

Kirchhoff, J., see Nesterov, V., TIM June 2019 1982-1989

Kirkko-Jaakkola, M., see Rantanen, J., TIM April 2019 1199-1209

Kitzig, J., Schlaghecke, S., and Bumiller, G., Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling; TIM April 2019 1014-1025

Klushin, A.M., see Khorshev, S.K., TIM June 2019 2113-2120

Knoefel, F., see Howcroft, J., TIM July 2019 2451-2459

Koay, S.C., see Lee, J.R., TIM Nov. 2019 4518-4525

Kobayashi, R., see Hattori, K., TIM June 2019 2253-2259

Kolen, A.F., see Hamelmann, P., TIM Sept. 2019 3221-3231

Kolk, R., see Kopaczka, M., TIM May 2019 1389-1401

Kolodziej, M., Majkowski, A., Rak, R.J., and Rysz, A., Detection of Spikes With Defined Parameters in the ECoG Signal; TIM April 2019 1045-1052

Kon, S., see Yamada, T., TIM June 2019 2021-2026

Kon, S., see Horibe, M., TIM June 2019 1774-1780

Kong, W., Miao, Q., and Lei, Y., Multimodal Sensor Medical Image Fusion Based on Local Difference in Non-Subsampled Domain; TIM April 2019

Kopaczka, M., Kolk, R., Schock, J., Burkhard, F., and Merhof, D., A Thermal Infrared Face Database With Facial Landmarks and Emotion Labels; TIM May 2019 1389-1401

Korb, M., see Liao, J., TIM July 2019 2374-2386

Korutlu, B., see Ahmedov, H., TIM June 2019 2172-2175

Kowal, K., see Marshall, C., TIM Feb. 2019 533-546

Koziol, M., see Rybski, R., TIM June 2019 1821-1826 Kraft, M.E., see Rigosi, A.F., TIM June 2019 1870-1878

Krajewski, M., see Miczulski, W., TIM March 2019 895-902

Kratzer, Z.C.N., see Whitney, A.M., TIM Sept. 2019 3329-3338

Krause, C., see Gotz, M., TIM June 2019 2027-2033

Krause, C., see Fan, I., TIM June 2019 2129-2135

Krause, C., see Scherer, H., TIM June 2019 1887-1894

Krishnakumar, T., see Hemalatha, T., TIM March 2019 903-912

Kruskopf, M., see Rigosi, A.F., TIM June 2019 1870-1878

Krzywoszyja, G., Rybski, R., and Andrzejewski, G., Bee Swarm Detection Based on Comparison of Estimated Distributions Samples of Sound; TIM Oct. 2019 3776-3784

Kucera, J., Svoboda, P., and Pierz, K., AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K; TIM June 2019 2106-2112

Kucera, J., see Kim, D.B., TIM June 2019 1941-1947

Kuepferling, M., see Sola, A., TIM June 2019 1765-1773

Kuhn, E., and Nicolaus, A., Wavefront Aberration of Spheres With Local Deviations and Their Influence on the Radius Value; TIM June 2019 2303-2309

Kulon, J., see Haigh, S., TIM March 2019 646-655

Kumagai, M., see Abe, T., TIM June 2019 2078-2083

Kumar, M., see Raghuwanshi, S.K., TIM Aug. 2019 2954-2963

Kumar, M.R., Ghosh, S., and Das, S., Analytical Formulation for Power, Energy, and Efficiency Measurement of Ultracapacitor Using Fractional Calculus; TIM Dec. 2019 4834-4844

Kumar, V.J., see Tejaswini, K.K., TIM May 2019 1602-1610

Kumosa, M., see Waters, D.H., TIM Feb. 2019 595-605

Kuo, L., see Tsai, H., TIM May 2019 1561-1574

Kuramoto, N., Zhang, L., Fujita, K., Okubo, S., Inaba, H., and Fujii, K., Volume Measurement of a <sup>28</sup>Si-Enriched Sphere for a Determination of the Avogadro Constant at NMIJ; TIM June 2019 1913-1920

Kuramoto, N., see Mizushima, S., TIM June 2019 1879-1886

Kurokawa, S., see Matsukawa, S., TIM June 2019 1756-1764

Kuschel, T., see Sola, A., TIM June 2019 1765-1773

Kwon, G., see Lee, C., TIM Jan. 2019 215-224

Kwon, J., see Kang, N., TIM June 2019 1967-1972

Kyriakides, E., see Asprou, M., TIM Aug. 2019 2808-2818

Laguna, M.F., see Maigler, M.V., TIM Sept. 2019 3193-3199

Lahmiri, S., and Shmuel, A., Accurate Classification of Seizure and Seizure-Free Intervals of Intracranial EEG Signals From Epileptic Patients; TIM March 2019 791-796

Lahmiri, S., Gait Nonlinear Patterns Related to Parkinson's Disease and Age; TIM July 2019 2545-2551

Lai, Y., see Kao, I., TIM Feb. 2019 310-324

Lam, J.K., see Lee, J.R., TIM Nov. 2019 4518-4525

Lama, F., see Ghaderi, A., TIM Oct. 2019 3892-3898

Lamonaca, F., see Carni, D.L., TIM April 2019 980-986

Lan, L., Chen, J., Wu, Y., Bai, Y., Bi, X., and Li, Y., Self-Calibrated Multiharmonic CO2 Sensor Using VCSEL for Urban In Situ Measurement; TIM April 2019 1140-1147

Lancini, M., see Pasinetti, S., TIM Nov. 2019 4456-4471

Landi, C., see Cataliotti, A., TIM May 2019 1322-1332

Landi, C., see Crotti, G., TIM June 2019 1724-1731

Landi, C., see Crotti, G., TIM Oct. 2019 3861-3870

Landi, C., see Crotti, G., TIM Oct. 2019 3850-3860

Landi, E., see Addabbo, T., TIM July 2019 2363-2373

Langella, R., see Collin, A.J., TIM Oct. 2019 3883-3891

Langella, R., see Collin, A.J., TIM Oct. 2019 3841-3849

Laracca, M., see Bernieri, A., TIM May 2019 1533-1542

Lataire, J., see Pintelon, R., TIM Oct. 2019 4175-4187

Laufer, B., see Karacocuk, G., TIM Nov. 2019 4268-4275

Laurano, C., see Faifer, M., TIM May 2019 1611-1618

Laurano, C., see Faifer, M., TIM Aug. 2019 2800-2807

Laurano, C., see Cristaldi, L., TIM Aug. 2019 2792-2799

Laurano, C., see Faifer, M., TIM Oct. 2019 3823-3830

Lavatelli, A., Zanoni, A., Zappa, E., and Cigada, A., On the Design of Force Sensors Based on Frustrated Total Internal Reflection; TIM Oct. 2019 4065-

Lavatelli, A., Balcaen, R., Zappa, E., and Debruyne, D., Closed-Loop Optimization of DIC Speckle Patterns Based on Simulated Experiments; TIM Nov. 2019 4376-4386

Laviada, J., Wu, B., Ghasr, M.T., and Zoughi, R., Nondestructive Evaluation of Microwave-Penetrable Pipes by Synthetic Aperture Imaging Enhanced by Full-Wave Field Propagation Model; TIM April 2019 1112-1119

Lavin, A., see Maigler, M.V., TIM Sept. 2019 3193-3199

Le Bihan, Y., see Ouameur, M., TIM March 2019 854-863

Lee, C., Kwon, G., and Shin, Y., Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry; TIM Jan. 2019 215-224

Lee, D., see Hong, Y., TIM Dec. 2019 4746-4755

Lee, D., Ahmed, A., and Yeom, K., A Measurement of Noise Wave Correlation Matrix Using Noise Power Ratios; *TIM July 2019 2579-2593* 

Lee, H., see Hong, Y., TIM Dec. 2019 4746-4755

Lee, H., see Rigosi, A.F., TIM June 2019 1870-1878

Lee, H.J., see Que, Y., TIM Dec. 2019 4663-4674

Lee, J., see Choi, B., TIM May 2019 1382-1388

Lee, J., see Choi, B., TIM May 2019 1382-1388

Lee, J., see Choi, B., TIM May 2019 1382-1388

Lee, J.K., A Parallel Attitude-Heading Kalman Filter Without State-Augmentation of Model-Based Disturbance Components; TIM July 2019 2668-2670

Lee, J.R., Lam, J.K., Von Lau, E., Koay, S.C., and Cheah, K.H., Torsional Balance for Simultaneous Evaluation of Thrust Force and Flow Velocity of Electrostatically Induced Ionic Wind; TIM Nov. 2019 4518-4525

Lee, S., see Choi, B., TIM May 2019 1382-1388

Lee, W., see Ooi, B.Y., TIM May 2019 1522-1532

Lee, W.H., see Hwang, J., TIM July 2019 2387-2393

Lee, Y., see Lim, K., TIM Aug. 2019 2964-2970

Lehman, J.H., see Williams, P.A., TIM June 2019 1833-1839

Lehtonen, T.A., Harmonic Power Standard of VTT MIKES; TIM June 2019 2047-2052

Lei, Y., see Ma, C., TIM Jan. 2019 38-48

Lei, Y., see Kong, W., TIM April 2019 938-951

Lemmon, A.N., see Nelson, B.W., TIM Jan. 2019 129-137

Lennox, B., see Carrigan, T.D., TIM Feb. 2019 586-594

Leon, J., see Perpina, X., TIM Aug. 2019 2861-2870

Leonardi, S.G., see Hemalatha, T., TIM March 2019 903-912

Leong, A., see Kashan, M.A.M., TIM Jan. 2019 303-305

Lerch, M., see Caban, S., TIM Oct. 2019 3484-3493

Lerch, R., see Linnert, M.A., TIM May 2019 1284-1293

Leroux, P., see Vanhamel, J., TIM March 2019 874-881

Lesci, I.G., see Callari, G., TIM July 2019 2425-2432

Leung, V.C.M., see Liao, L., TIM Feb. 2019 377-391

Levichev, M.Y., see Khorshev, S.K., TIM June 2019 2113-2120

Li, B., see Wang, T., TIM March 2019 818-828

Li, B., see Shi, L., TIM Sept. 2019 3244-3252

Li, C., see Gu, Z., TIM July 2019 2659-2661

Li, C., see Tang, D., TIM May 2019 1441-1450

Li, C., see Mo, L., TIM Aug. 2019 2926-2933

Li, C., see Gao, C., TIM Oct. 2019 3626-3634

Li, G., see Yang, Z., TIM Dec. 2019 4906-4912

Li, G., see Xu, X., TIM April 2019 963-971

Li, G., Wu, J., Luo, Z., and Chen, X., Vision-Based Measurement of Dust Concentration by Image Transmission; TIM Oct. 2019 3942-3949

Li, H., Zhang, X., Zhu, B., and Fatikow, S., Online Precise Motion Measurement of 3-DOF Nanopositioners Based on Image Correlation; *TIM March* 2019 782-790

Li, H., see Huang, J., TIM Sept. 2019 3253-3267

Li, J., Wang, Y., Zhang, X., Ji, C., and Shi, J., Sensitivity and Resolution Enhancement of Coupled-Core Fluxgate Magnetometer by Negative Feedback; TIM Feb. 2019 623-631

Li, J., see Xu, X., TIM April 2019 963-971

Li, J., see Han, X., TIM Aug. 2019 2890-2897

Li, J., Gao, W., Zhang, Y., and Wang, Z., Gradient Descent Optimization-Based Self-Alignment Method for Stationary SINS; TIM Sept. 2019 3278-3286

Li, J., He, H., and Li, L., CGAN-MBL for Reliability Assessment With Imbalanced Transmission Gear Data; TIM Sept. 2019 3173-3183

Li, J., see Yi, J., TIM Oct. 2019 3503-3513

Li, L., see Yang, R., TIM Sept. 2019 3119-3127

Li, L., see Li, J., TIM Sept. 2019 3173-3183

Li, N., see Huang, W., TIM Aug. 2019 2819-2829

Li, N., Xu, K., Liu, K., He, C., and Wu, B., A Novel Sensitivity Matrix Construction Method for Ultrasonic Tomography Based on Simulation Studies; TIM Oct. 2019 3548-3562

Li, N., see Hu, C., TIM Oct. 2019 3733-3739

Li, P., see Luo, Q., TIM March 2019 667-679

Li, Q., see Yu, H., TIM March 2019 656-666

Li, Q., see Wang, Y., TIM April 2019 987-1001

**Li, Q.,** see Wei, X., TIM Nov. 2019 4481-4492

Li, R., see Yu, B., TIM Oct. 2019 4146-4151

Li, S., see Gao, Z., TIM July 2019 2491-2497

Li, S., see Zhou, X., TIM Jan. 2019 234-239

Li, W., see Sun, J., TIM Dec. 2019 4787-4797

Li, W., see Cheng, Y., TIM April 2019 952-962

Li, W., see Wei, X., TIM Nov. 2019 4481-4492

Li, X., see Gao, J., TIM Dec. 2019 4765-4778

Li, X., see Zhou, X., TIM Jan. 2019 234-239

Li, X., see Zhao, Q., TIM Oct. 2019 3589-3599

Li, X., see Zhang, S., TIM Oct. 2019 3635-3646

Li, Y., see Zhang, M., TIM March 2019 722-740

Li, Y., see Chen, L., TIM Jan. 2019 250-260

Li, Y., see Zhao, S., TIM Jan. 2019 138-150

Li, Y., see Zhang, R., TIM April 2019 1120-1131

Li, Y., see Lan, L., TIM April 2019 1140-1147

**Li, Y.,** see Yan, W., TIM June 2019 1666-1670 **Li, Y.,** see Zhang, T., TIM Oct. 2019 3740-3750

Li, Z., Tao, Y., Abu-Siada, A., Masoum, M.A.S., Xu, Y., and Zhao, X., A New Vibration Testing Platform for Electronic Current Transformers; *TIM March* 2019 704-712

Li, Z., see Li, Z., TIM March 2019 704-712

Li, Z., see Xu, X., TIM April 2019 963-971

Li, Z., see Cheng, Y., TIM April 2019 952-962

Li, Z., Yuan, H., Cui, Y., Ding, Z., and Zhao, L., Measurement of Distorted Power-Frequency Electric Field With Integrated Optical Sensor; TIM April 2019 1132-1139

Li, Z., see Qian, L., TIM June 2019 1973-1981

Li, Z., see Bai, Y., TIM June 2019 2237-2245

Li, Z., He, Q., Tan, J., Bai, Y., Xu, J., You, Q., Wang, D., Zhang, Z., Lu, Y., Hu, P., and Liu, Y., The Improvements of the NIM-2 Joule Balance; *TIM June* 2019 2208-2214

Li, Z., see Yang, R., TIM Sept. 2019 3119-3127

Li, Z., see Yi, J., TIM Oct. 2019 3503-3513

Liang, G., see Ren, S., TIM March 2019 762-773

Liang, W., see Xu, H., TIM June 2019 1781-1787

Liao, J., Gross, M., Militaru, A., Frimmer, M., Novotny, L., Jost, M., Schaffner, M., Magno, M., Korb, M., Benini, L., Tebbenjohanns, F., Reimann, R., and Jain, V., FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles; *TIM July 2019 2374-2386* 

Liao, L., Leung, V.C.M., and Chen, M., An Efficient and Accurate Link Latency Monitoring Method for Low-Latency Software-Defined Networks; TIM Feb. 2019 377-391

Liao, L., see Tsai, H., TIM May 2019 1561-1574

Lidozzi, A., see Sabatini, V., TIM Oct. 2019 3972-3982

Liguori, C., Ruggiero, A., Russo, D., and Sommella, P., A Statistical Approach for Improving the Accuracy of Dry Friction Coefficient Measurement; *TIM* May 2019 1412-1423

Lim, K., Ong, Z., Lee, Y., Bin Zaini, M.K.A., and Ahmad, H., Pseudohigh-Resolution Spectral Interrogation Scheme for Small Signals From FBG Sensors; TIM Aug. 2019 2964-2970

Lima, R.G., see Mellenthin, M.M., TIM Sept. 2019 3137-3150

Lin, C., Lin, S., Hwang, C., Tu, H., Chen, C., and Weng, C., Real-Time Image-Based Defect Inspection System of Internal Thread for Nut; *TIM Aug.* 2019 2830-2848

Lin, D., see Wang, C., TIM April 2019 1053-1061

Lin, J., see Zhang, S., TIM Dec. 2019 4817-4824

**Lin, J.,** see Liu, F., TIM Feb. 2019 525-532

Lin, J., see Shi, Z., TIM June 2019 2053-2059

Lin, J.X., see Wu, E.Q., TIM Oct. 2019 3907-3919

Lin, M., see Dai, H., TIM Sept. 2019 3379-3386

Lin, S., see Lin, C., TIM Aug. 2019 2830-2848

Lin, Y., Wang, Y., and Cheng, J.C., Contactless Monitoring of Pulse Rate and Eye Movement for Uveal Melanoma Patients Undergoing Radiation Therapy; TIM Feb. 2019 474-482

Lin, Y., see Lin, Y., TIM Feb. 2019 474-482

Lin, Y., see Tsai, H., TIM May 2019 1561-1574

Ling, K., see Sun, L., TIM Feb. 2019 421-429

Linnert, M.A., Mariager, S.O., Rupitsch, S.J., and Lerch, R., Dynamic Offset Correction of Electromagnetic Flowmeters; TIM May 2019 1284-1293

Liu, D., see He, Y., TIM April 2019 1035-1044

Liu, F., Lin, J., Wang, Y., Wang, S., Cao, X., and Chen, B., Design of Cable Parallel Air-Core Coil Sensor to Reduce Motion-Induced Noise in Helicopter Transient Electromagnetic System; TIM Feb. 2019 525-532

Liu, G., see Shi, L., TIM Aug. 2019 2996-3003

Liu, G., and Zhu, L., Product-Specific Nonlinear Characterization and Instrument for Illumination Angle Measurement With Manufacturing Defects; TIM Sept. 2019 3299-3307

Liu, H., see Chen, L., TIM Jan. 2019 250-260

Liu, J., see Hu, Y., TIM June 2019 1844-1851

Liu, J., see Yu, B., TIM Oct. 2019 4146-4151

Liu, J., see Qu, N., TIM Oct. 2019 3785-3792

Liu, K., see Su, B., TIM Dec. 2019 4675-4688

Liu, K., see Li, N., TIM Oct. 2019 3548-3562

Liu, L., Wang, L., Guo, C., Mei, H., and Zhao, C., Detecting Defects in Porcelain Postinsulator Coated With Room Temperature Vulcanized Silicone Rubber by Pulsed Thermography; TIM Jan. 2019 225-233

Liu, M., Wang, H., Yang, Y., Zhang, Y., Ma, L., and Wang, N., RFID 3-D Indoor Localization for Tag and Tag-Free Target Based on Interference; TIM Oct. 2019 3718-3732

Liu, S., Lyu, N., Cui, J., and Zou, Y., Improved Blind Timing Skew Estimation Based on Spectrum Sparsity and ApFFT in Time-Interleaved ADCs; TIM Jan. 2019 73-86

Liu, S., see Xia, H., TIM April 2019 1189-1198

Liu, W., see Wang, J., TIM March 2019 882-894

Liu, W., see Su, B., TIM Dec. 2019 4675-4688

Liu, W., see Zhang, J., TIM Feb. 2019 402-411

Liu, W., see Wang, J., TIM Aug. 2019 3042-3044

Liu, X., see Yue, C., TIM March 2019 688-692

Liu, X., see Yin, M., TIM Jan. 2019 49-64

Liu, X., see Zhao, D., TIM Oct. 2019 3418-3432

Liu, Y., see Lu, S., TIM July 2019 2315-2332

Liu, Y., see Yin, M., TIM Jan. 2019 49-64

Liu, Y., see Mu, B., TIM May 2019 1575-1581

Liu, Y., see Li, Z., TIM June 2019 2208-2214

Liu, Y., see Chen, X., TIM Oct. 2019 3600-3615

Liu, Z., see Yu, Z., TIM May 2019 1543-1553

Liu, Z., see Zhong, J., TIM Aug. 2019 2849-2860

Liu, Z., see Shen, Y., TIM Oct. 2019 4051-4064

Liu, Z., Wu, S., Wu, Q., Quan, C., and Ren, Y., A Novel Stereo Vision Measurement System Using Both Line Scan Camera and Frame Camera; TIM Oct. 2019 3563-3575

Liu, Z., see Wang, H., TIM Oct. 2019 3536-3547

Liu, Z., see Pan, X., TIM Nov. 2019 4575-4589

Lizarraga, M., see Gonzalez-Chavez, O., TIM Nov. 2019 4387-4399

Loete, F., Time-Domain Gating Applied to the Quantitative Evaluation of Soft Defects in Embedded Electric Cables; TIM Nov. 2019 4368-4375

Lombardi, M., see Allal, D., TIM June 2019 1652

Lombardo, L., Parvis, M., Angelini, E., and Grassini, S., An Optical Sampling System for Distributed Atmospheric Particulate Matter; TIM July 2019 2396-2403

Long, X., see Wang, Q., TIM July 2019 2552-2559

Longland, R., see Marshall, C., TIM Feb. 2019 533-546

Lopetegi, I., see Otegui, J., TIM Jan. 2019 269-279

Lopez, O., see Xu, D., TIM June 2019 2195-2200

Lopez-Fraguas, E., Sanchez-Pena, J.M., and Vergaz, R., A Low-Cost LED-Based Solar Simulator; TIM Dec. 2019 4913-4923

Lorias-Espinoza, D., see Gonzalez-Briceno, G., TIM March 2019 797-806

Lu, C., see Yu, Y., TIM Jan. 2019 87-94

Lu, G., see Jiang, Z., TIM Dec. 2019 4807-4816

Lu, J., see Zhao, Q., TIM Oct. 2019 3589-3599

Lu, S., Qin, Y., Hang, J., Zhang, B., and Wang, Q., Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis; TIM March 2019 741-753

Lu, S., Yan, R., Liu, Y., and Wang, Q., Tacholess Speed Estimation in Order Tracking: A Review With Application to Rotating Machine Fault Diagnosis; TIM July 2019 2315-2332

Lu, X., see Yu, Z., TIM May 2019 1543-1553

Lu, X., see Gu, D., TIM June 2019 2280-2287

Lu, X., see Zhou, X., TIM Nov. 2019 4253-4267

Lu, Y., see Zhao, J., TIM June 2019 1961-1966

Lu, Y., see Bai, Y., TIM June 2019 2237-2245

Lu, Y., see Huang, L., TIM June 2019 2144-2150

Lu, Y., see Li, Z., TIM June 2019 2208-2214

Lu, Z., see Huang, L., TIM June 2019 2144-2150

Luce, M., see Callari, G., TIM July 2019 2425-2432

Luchetta, A., Manetti, S., Piccirilli, M.C., Reatti, A., Corti, F., Catelani, M., Ciani, L., and Kazimierczuk, M.K., MLMVNNN for Parameter Fault Detection in PWM DC-DC Converters and Its Applications for Buck and Boost DC-DC Converters; TIM Feb. 2019 439-449

Ludwig, R., see Alqudsi, A., TIM Sept. 2019 3396-3404

**Luiso, M.,** see Cataliotti, A., TIM May 2019 1322-1332

Luiso, M., see Crotti, G., TIM June 2019 1724-1731

Luiso, M., see Crotti, G., TIM Oct. 2019 3861-3870

Luiso, M., see Crotti, G., TIM Oct. 2019 3850-3860

Luiso, M., see Collin, A.J., TIM Oct. 2019 3841-3849

Lukocius, R., see Nakutis, Z., TIM March 2019 713-721

Lunglmayr, M., and Amaral, G.C., Linearized Bregman Iterations for Automatic Optical Fiber Fault Analysis; TIM Oct. 2019 3699-3711

Luo, Q., Sun, Y., Li, P., Simpson, O., Tian, L., and He, Y., Generalized Completed Local Binary Patterns for Time-Efficient Steel Surface Defect Classification; TIM March 2019 667-679

Luo, Y., see Sun, J., TIM Dec. 2019 4787-4797

Luo, Z., see Li, G., TIM Oct. 2019 3942-3949

Lyu, N., see Liu, S., TIM Jan. 2019 73-86

### M

Ma, C., Guo, Y., Lei, Y., and An, W., Binary Volumetric Convolutional Neural Networks for 3-D Object Recognition; TIM Jan. 2019 38-48

Ma, L., see Liu, M., TIM Oct. 2019 3718-3732

Ma, M., see Zhang, J., TIM Oct. 2019 4112-4121

Ma, X., Guo, Y., Chen, X., Xiang, Y., and Chen, K., Impact of Coreless Current Transformer Position on Current Measurement; TIM Oct. 2019 3801-3809

Maccio, D., see Cataliotti, A., TIM Feb. 2019 430-438

Machado, R., Cabral, J., and Alves, F.S., Recent Developments and Challenges in FPGA-Based Time-to-Digital Converters; TIM Nov. 2019 4205-4221

Macii, D., see Magnago, V., TIM Nov. 2019 4443-4455

Madanayake, A., see Sheldon, A., TIM July 2019 2662-2664

Mafrica, S., see Al Hage, J., TIM Aug. 2019 2988-2995

Magana, M.E., see Wu, C., TIM Sept. 2019 3387-3395

Magnago, V., Palopoli, L., Passerone, R., Fontanelli, D., and Macii, D., Effective Landmark Placement for Robot Indoor Localization With Position Uncertainty Constraints; TIM Nov. 2019 4443-4455

Magno, M., see Mayer, P., TIM July 2019 2346-2355

Magno, M., see Liao, J., TIM July 2019 2374-2386

Magrini, A., see Callari, G., TIM July 2019 2425-2432

Maharana, M., Baruah, N., Nayak, S.K., Meher, N., and Iyer, P.K., Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement; TIM Dec. 2019 4853-4863

Maheshwari, M., Yang, Y., Upadrashta, D., and Chaturvedi, T., A Rotation Independent In-Place Inclinometer/Tilt Sensor Based on Fiber Bragg Grating; TIM Aug. 2019 2943-2953

Mahmood, A., see Nikonowicz, J., TIM Jan. 2019 105-115

Mai-Khanh, N.N., see Takahashi, D., TIM July 2019 2519-2530

Maigler, M.V., Holgado, M., Laguna, M.F., Sanza, F.J., Santamaria, B., Lavin, A., and Espinosa, R.L., A New Device Based on Interferometric Optical Detection Method for Label-Free Screening of C-Reactive Protein; TIM Sept. 2019 3193-3199

Majhi, S., see Gupta, R., TIM Aug. 2019 3020-3031

Majid Butt, M., see Dey, I., TIM Jan. 2019 297-299

Majkowski, A., see Kolodziej, M., TIM April 2019 1045-1052

Makela, M., see Rantanen, J., TIM April 2019 1199-1209

Makis, V., see Zhao, S., TIM Jan. 2019 138-150

Maksimov, V.Y., see Khorshev, S.K., TIM June 2019 2113-2120

Malengo, A., see Pisani, M., TIM June 2019 2223-2228

Mallett, T.C., Aging in Commercial Thick- and Thin-Film Resistors: Survey and Uncertainty Analysis; *TIM Nov. 2019 4190-4204* 

Mandal, S., see Tang, X., TIM Nov. 2019 4535-4549

Manetti, S., see Luchetta, A., TIM Feb. 2019 439-449

Manikandan, M.S., see Vadrevu, S., TIM March 2019 807-817

Marashdeh, Q.M., see Zeeshan, Z., TIM Feb. 2019 462-473

Marchetti, N., see Dey, I., TIM Jan. 2019 297-299

Marchetti, S., see Cennamo, N., TIM May 2019 1582-1589

Marciulionis, P., see Nakutis, Z., TIM March 2019 713-721

Mariager, S.O., see Linnert, M.A., TIM May 2019 1284-1293

Marino, S., see Gugliandolo, G., TIM May 2019 1451-1457

Mariscotti, A., see Crotti, G., TIM Oct. 2019 3861-3870

Marletta, V., see Ando, B., TIM July 2019 2356-2362

Marletta, V., see Ando, B., TIM Jan. 2019 280-290

Marletta, V., see Cennamo, N., TIM May 2019 1582-1589

Marletta, V., see Ando, B., TIM May 2019 1477-1484

Marletta, V., see Ando, B., TIM May 2019 1619-1627

Marletta, V., see Ando, B., TIM Aug. 2019 3032-3041

Marsala, G., see Cataliotti, A., TIM Feb. 2019 430-438

Marshall, C., Setoodehnia, K., Kowal, K., Portillo, F., Champagne, A.E., Hale, S., Dummer, A., and Longland, R., The Focal-Plane Detector Package on the TUNL Split-Pole Spectrograph; *TIM Feb. 2019 533-546* 

Marshall, S., see Howcroft, J., TIM July 2019 2451-2459

Martinelli, E., see Callari, G., TIM July 2019 2425-2432

Martinelli, E., see Casti, P., TIM July 2019 2442-2450

Martinez, A., see Sachica, M., TIM June 2019 2168-2171

Martinez-Tarifa, J.M., see Robles, G., TIM Dec. 2019 4703-4711

Martins, M.B., de Barros e Vasconcellos, R.T., and Esquef, P.A.A., Models for Synchrophasor With Step Discontinuities in Magnitude and Phase: Estimation and Performance; *TIM June 2019 2007-2014* 

Martos, J., see Aranzabal, N., TIM April 2019 1062-1070

Mascali, D., see Ando, B., TIM May 2019 1477-1484

Masi, A., see Serrano Galvez, P., TIM March 2019 864-873

Maslan, S., Sira, M., Skalicka, T., and Bergsten, T., Four-Terminal Pair Digital Sampling Impedance Bridge up to 1MHz; *TIM June 2019 1860-1869* 

Masoum, M.A.S., see Li, Z., TIM March 2019 704-712

Masoumi, N., see Rahimpour, H., TIM July 2019 2602-2609

**Masoumi, N.,** see Khoshakhlagh, M., TIM Nov. 2019 4502-4509

Matsukawa, S., Kurokawa, S., and Hirose, M., Uncertainty Analysis of Far-Field Gain Measurement of DRGH Using the Single-Antenna Method and Amplitude Center Distance; *TIM June 2019 1756-1764* 

Mavretic, A., see Alqudsi, A., TIM Sept. 2019 3396-3404

Maya-Hernandez, P.M., Calvo-Lopez, B., and Sanz-Pascual, M.T., Ultralow-Power Synchronous Demodulation for Low-Level Sensor Signal Detection; *TIM Oct.* 2019 3514-3523

Mayer, P., Magno, M., and Benini, L., Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring; TIM July 2019 2346-2355

Mazza, P., see Faifer, M., TIM Aug. 2019 2800-2807

Mazzaglia, A., see Ando, B., TIM May 2019 1477-1484

Medjaher, K., see Atamuradov, V., TIM Aug. 2019 2691-2704

Medow, J.E., see Gonzalez-Briceno, G., TIM March 2019 797-806

Meher, N., see Maharana, M., TIM Dec. 2019 4853-4863

Mei, H., see Zhang, Z., TIM Dec. 2019 4896-4905

Mei, H., see Liu, L., TIM Jan. 2019 225-233

Mellenthin, M.M., Mueller, J.L., de Camargo, E.D.L.B., de Moura, F.S., Santos, T.B.R., Lima, R.G., Hamilton, S.J., Muller, P.A., and Alsaker, M., The ACE1 Electrical Impedance Tomography System for Thoracic Imaging; *TIM Sept. 2019 3137-3150* 

Melo, A.A.d., Silva, T.B.d., Santiago, M.F.d.S., Moreira, C.d.S., and Cruz, R.M.S., Theoretical Analysis of Sensitivity Enhancement by Graphene Usage in Optical Fiber Surface Plasmon Resonance Sensors; *TIM May 2019* 1554-1560

Melo, W.S., Bessani, A., Neves, N., Santin, A.O., and Carmo, L.F.R.C., Using Blockchains to Implement Distributed Measuring Systems; *TIM May 2019* 1503-1514

Melton, W., see Stone, T., TIM Aug. 2019 2979-2987

Mencattini, A., see Callari, G., TIM July 2019 2425-2432

Mencattini, A., see Casti, P., TIM July 2019 2442-2450

Meng, H., see He, Q., TIM Oct. 2019 3456-3467

Menguc, E.C., see Zerdali, E., TIM Oct. 2019 3793-3795

Menon, H., see Mishra, M., TIM Sept. 2019 3211-3220

Merenda, M., see Carotenuto, R., TIM July 2019 2507-2518

Merhof, D., see Kopaczka, M., TIM May 2019 1389-1401

Messier, G., see Sheldon, A., TIM July 2019 2662-2664

Meynadier, F., see Xu, D., TIM June 2019 2195-2200

Miao, Q., see Kong, W., TIM April 2019 938-951

Miczulski, W., Krajewski, M., and Sienkowski, S., A New Autocalibration Procedure in Intelligent Temperature Transducer; *TIM March* 2019 895-902

Miele, G., see Capriglione, D., TIM May 2019 1302-1312

Mihelj, M., Podobnik, J., and Munih, M., Sensory Fusion of Magnetoinertial Data Based on Kinematic Model With Jacobian Weighted-Left-Pseudoinverse and Kalman-Adaptive Gains; *TIM July 2019 2610-2620* 

Milagre, S.T., see Arencibia, R.V., TIM Dec. 2019 4798-4806

Militaru, A., see Liao, J., TIM July 2019 2374-2386

Min, Q., see Zhu, J., TIM May 2019 1373-1381

Ming, D., see Song, X., TIM Dec. 2019 4779-4786

Mingotti, A., see Ghaderi, A., TIM July 2019 2656-2658

Mingotti, A., see Ghaderi, A., TIM Oct. 2019 3892-3898

Minor-Martinez, A., see Gonzalez-Briceno, G., TIM March 2019 797-806

Mirala, A., see Foudazi, A., TIM Feb. 2019 576-585

Miroslaw, M., Kaczmarek, J., and Rybski, R., Characterization of PXI-Based Generators for Impedance Measurement Setups; *TIM June 2019 1806-1813* 

Mischi, M., see Hamelmann, P., TIM Sept. 2019 3221-3231

Mischi, M., see Xu, L., TIM Oct. 2019 4085-4093

**Mishra, M.,** Menon, H., and Mukherjee, A., Characterization of  $S_1$  and  $S_2$  Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network; *TIM Sept.* 2019 3211-3220

Mithran, N., and Muniyandi, V., IR Transceiver Irradiation Characteristics on Bubble/Slug Flow Regimes in Conventional and Minichannels; *TIM Jan.* 2019 240-249

Mizushima, S., Kuramoto, N., Fujii, K., and Umeda, T., Electron Paramagnetic Resonance Study on <sup>28</sup>Si Single Crystal for the Future Realization of the Kilogram; *TIM June 2019 1879-1886* 

Mo, L., and Li, C., Passive UHF-RFID Localization Based on the Similarity Measurement of Virtual Reference Tags; *TIM Aug.* 2019 2926-2933

Mo, S., see Yang, R., TIM Sept. 2019 3119-3127

Moazzam, A., see Tahir, M., TIM Oct. 2019 4152-4161

Moccaldi, N., see Angrisani, L., TIM Oct. 2019 3616-3625

Modarres, M., see Cataliotti, A., TIM May 2019 1322-1332

Mohns, E., see Rietveld, G., TIM June 2019 1732-1739

Mohns, E., Chunyang, J., Badura, H., and Raether, P., A Fundamental Step-Up Method for Standard Voltage Transformers Based on an Active Capacitive High-Voltage Divider; TIM June 2019 2121-2128

Molderez, T.R., Zhang, X., Rabaey, K., and Verhelst, M., A Current-Driven Six-Channel Potentiostat for Rapid Performance Characterization of Microbial Electrolysis Cells; TIM Dec. 2019 4694-4702

Molinari, R., see Radi, A., TIM Dec. 2019 4924-4936

Moller, K., see Karacocuk, G., TIM Nov. 2019 4268-4275

Montazer, B., see Protim Goswami, M., TIM March 2019 913-922

Monti, A., see Pau, M., TIM Oct. 2019 3992-4002

Monti, A., see Pau, M., TIM Nov. 2019 4300-4312

Morais, F.J.O., see de Morais Franca, M.B., TIM Feb. 2019 606-613

Morales, A.W., see Sharma, K., TIM Nov. 2019 4419-4426

Moreira, C.d.S., see Melo, A.A.d., TIM May 2019 1554-1560

Moreno-Eguilaz, M., see Kadechkar, A., TIM Dec. 2019 4825-4833

Moretti, R., see Addabbo, T., TIM July 2019 2469-2478

Moschitta, A., see Santoni, F., TIM May 2019 1494-1502

Motroni, A., see Buffi, A., TIM March 2019 845-853

Mu, B., Qu, R., Tan, T., Tian, Y., Chai, Q., Zhao, X., Wang, S., Liu, Y., and Zhang, J., Fiber Bragg Grating-Based Oil-Film Pressure Measurement in Journal Bearings; *TIM May 2019 1575-1581* 

Mu, C., see Gao, Z., TIM July 2019 2491-2497

Mu, X., see Wang, Y., TIM April 2019 987-1001

Mu, Y., Wang, C., Zhang, X., and Xie, W., A Novel Calibration Method for Magnetometer Array in Nonuniform Background Field; TIM Oct. 2019 3677-3685

Mueller, J.L., see Mellenthin, M.M., TIM Sept. 2019 3137-3150

Mueller, M., see Nesterov, V., TIM June 2019 1982-1989

Mugnaini, M., see Addabbo, T., TIM March 2019 837-844

Mugnaini, M., see Addabbo, T., TIM July 2019 2412-2424

Mugnaini, M., see Addabbo, T., TIM July 2019 2469-2478

Mugnaini, M., see Addabbo, T., TIM July 2019 2363-2373

**Mukherjee, A.,** see Mishra, M., TIM Sept. 2019 3211-3220

Muller, P.A., see Mellenthin, M.M., TIM Sept. 2019 3137-3150

Munih, M., see Mihelj, M., TIM July 2019 2610-2620

Muniyandi, V., see Mithran, N., TIM Jan. 2019 240-249

Musaro, A., see Pisu, S., TIM July 2019 2404-2411

Muscas, C., see Carta, D., TIM Jan. 2019 95-104

Muscas, C., see Pegoraro, P.A., TIM April 2019 1002-1013

Muscas, C., see Pau, M., TIM Oct. 2019 3992-4002

Muscas, C., see Pegoraro, P.A., TIM Oct. 2019 3871-3882

Mvemba, P.K., see Addabbo, T., TIM July 2019 2412-2424

### N

Nacy, M., see Gao, Y., TIM Feb. 2019 512-524

Nakura, T., see Takahashi, D., TIM July 2019 2519-2530

Nakutis, Z., Saunoris, M., Ramanauskas, R., Daunoras, V., Lukocius, R., and Marciulionis, P., A Method for Remote Estimation of Wattmeter's Adjustment Gain; *TIM March* 2019 713-721

Naletto, G., see Donazzan, A., TIM April 2019 1165-1177

Narayanan, A.S., see Zhao, Z., TIM Jan. 2019 169-176

Nardiello, D., see Iula, A., TIM Dec. 2019 4653-4662

Natoli, S., see Casti, P., TIM July 2019 2442-2450

Nayak, S.K., see Maharana, M., TIM Dec. 2019 4853-4863

Nayebi, M.A., see Salehi, Y., TIM Oct. 2019 3983-3991

ne Meier, D.C., see Sola, A., TIM June 2019 1765-1773

Neefs, E., see Vanhamel, J., TIM March 2019 874-881

Nelakuditi, S., see Stone, T., TIM Aug. 2019 2979-2987

Nelson, B.W., Lemmon, A.N., DeBoi, B.T., and Freeborn, T.J., Modeling and Validation of Fixture-Induced Error for Impedance Measurements; *TIM Jan.* 2019 129-137

Nelson, T., see Waltrip, B., TIM June 2019 2187-2194

Nepa, P., see Buffi, A., TIM March 2019 845-853

Neri, G., see Hemalatha, T., TIM March 2019 903-912

Nesterov, V., Nies, D., Belai, O., Buetefisch, S., Kirchhoff, J., Mueller, M., and Brand, U., The Status of PTB's Nanonewton Force Facility; *TIM June 2019* 1982-1989

Neumayer, M., Flatscher, M., and Bretterklieber, T., Coaxial Probe for Dielectric Measurements of Aerated Pulverized Materials; TIM May 2019 1402-1411

Neumayer, M., Bretterklieber, T., and Flatscher, M., Signal Processing for Capacitive Ice Sensing: Electrode Topology and Algorithm Design; *TIM May 2019 1458-1466* 

Neves, N., see Melo, W.S., TIM May 2019 1503-1514

Newell, D., see Chao, L., TIM June 2019 2176-2182

Newell, D.B., see Rigosi, A.F., TIM June 2019 1870-1878

Ng, K., see Giri, P., TIM April 2019 1210-1220

Nicolaus, A., see Kuhn, E., TIM June 2019 2303-2309

Nie, X., see Wang, Q., TIM July 2019 2552-2559

Nies, D., see Nesterov, V., TIM June 2019 1982-1989

Nikonowicz, J., Mahmood, A., Sisinni, E., and Gidlund, M., Noise Power Estimators in ISM Radio Environments: Performance Comparison and Enhancement Using a Novel Samples Separation Technique; TIM Jan. 2019 105-115

Ning, G., see Zhang, S., TIM Dec. 2019 4817-4824

Niu, L., see Zhang, M., TIM March 2019 722-740

Niu, S., see Tang, T., TIM Aug. 2019 2785-2791

Niwa, K., see Hattori, K., TIM June 2019 2253-2259

Novotny, L., see Liao, J., TIM July 2019 2374-2386

Numata, T., see Hattori, K., TIM June 2019 2253-2259

Nunez, A., see Wang, H., TIM Oct. 2019 3536-3547

0

Oberto, L., Identification of RF&MW Microcalorimeter Weak Points by Means of Uncertainty Analysis; TIM June 2019 1948-1954

Ochoa, D.A., see Sunol, F., TIM Aug. 2019 2724-2732

Oe, T., see Abe, T., TIM June 2019 2078-2083

Oho, S., Kaneko, Y., Hara, M., Oose, Y., and Fukuda, J., Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test; *TIM July 2019 2335-2345* 

Okawa, K., see Fujiki, H., TIM June 2019 1921-1926

Okawa, K., see Amagai, Y., TIM June 2019 1907-1912

Okubo, S., see Wada, M., TIM June 2019 2246-2252

Okubo, S., see Kuramoto, N., TIM June 2019 1913-1920

Olsson, E., see Rydblom, S., TIM Feb. 2019 614-622

Ong, Z., see Lim, K., TIM Aug. 2019 2964-2970

Ooi, B.Y., Beh, W.L., Lee, W., and Shirmohammadi, S., Using the Cloud to Improve Sensor Availability and Reliability in Remote Monitoring; TIM May 2019 1522-1532

Oose, Y., see Oho, S., TIM July 2019 2335-2345

Orhan, R., see Ahmedov, H., TIM June 2019 2172-2175

Ortega-Cisneros, S., see Gonzalez-Briceno, G., TIM March 2019 797-806

Ortolan, A., see Donazzan, A., TIM April 2019 1165-1177

Ospina Acero, D., see Zeeshan, Z., TIM Feb. 2019 462-473

Otegui, J., Bahillo, A., Lopetegi, I., and Diez, L.E., Evaluation of Experimental GNSS and 10-DOF MEMS IMU Measurements for Train Positioning; *TIM Jan.* 2019 269-279

Ottoboni, R., see Faifer, M., TIM May 2019 1611-1618

Ottoboni, R., see Faifer, M., TIM Aug. 2019 2800-2807

Ottoboni, R., see Cristaldi, L., TIM Aug. 2019 2792-2799

Ottoboni, R., see Faifer, M., TIM Oct. 2019 3823-3830

Ouameur, M., Ziade, F., and Le Bihan, Y., Novel Broadband Calibration Method of Current Shunts Based on VNA; TIM March 2019 854-863

Ouameur, M., Ziade, F., and Bihan, Y.L., Toward a Calculable Standard Shunt for Current Measurements at 10 A and Up To 1 MHz; *TIM June 2019 2215*-2222

Oueidat, G., see Saleh, M., TIM July 2019 2635-2647

Ouyang, K., Xiong, W., He, Q., and Peng, Z., Doppler Distortion Removal in Wayside Circular Microphone Array Signals; *TIM May 2019 1238-1251* Ouzounov, S., see Xu, L., *TIM Oct. 2019 4085-4093* 

P

Pack, D.J., see Schmidt, E., TIM Aug. 2019 2768-2784

Palazzo, A., see Rossi, G.B., TIM May 2019 1343-1352

Palazzo, A., see Rossi, G.B., TIM Nov. 2019 4357-4367

Palfi, V., An Improved Sine Wave Histogram Test Method for ADC Characterization; TIM Oct. 2019 3446-3455

Palopoli, L., see Magnago, V., TIM Nov. 2019 4443-4455

Palur, R.V., see Gunasekaran, V., TIM April 2019 1080-1088

Pan, D., Jiang, Z., Chen, Z., Gui, W., Xie, Y., and Yang, C., Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision; TIM Oct. 2019 3576-3588

Pan, J., see Zheng, J., TIM Jan. 2019 206-214

Pan, X., see Shi, Z., TIM June 2019 2053-2059

Pan, X., Liu, Z., and Zhang, G., On-Site Reliable Wheel Size Measurement Based on Multisensor Data Fusion; TIM Nov. 2019 4575-4589

Pang, P., see Han, X., TIM Aug. 2019 2890-2897

Panna, A.R., see Rigosi, A.F., TIM June 2019 1870-1878

Panzardi, E., see Addabbo, T., TIM March 2019 837-844

Paolone, M., see Frigo, G., TIM Oct. 2019 3810-3822

Paolone, M., see Frigo, G., TIM Oct. 2019 3468-3483

Paral, P., Chatterjee, A., and Rakshit, A., OPTICS-Based Template Matching for Vision Sensor-Based Shoe Detection in Human-Robot Coexisting Environments; TIM Nov. 2019 4276-4284

Park, J., see Choi, B., TIM May 2019 1382-1388

Park, J., see Kang, N., TIM June 2019 1967-1972

Park, J.J., see Hong, Y., TIM Dec. 2019 4746-4755

Parker, J.M., see Whitney, A.M., TIM Sept. 2019 3329-3338

Parks, H., see Djokic, B., TIM June 2019 1955-1960

Parks, H.V., see So, E., TIM June 2019 1680-1687

Parri, L., see Addabbo, T., TIM July 2019 2412-2424

Partlow, A., see Haigh, S., TIM March 2019 646-655

Parvis, M., see Lombardo, L., TIM July 2019 2396-2403

Parvis, M., see Iannucci, L., TIM May 2019 1424-1431

Pasadas, D.J., see Feng, B., TIM May 2019 1252-1260

Pasetti, M., see Rinaldi, S., TIM Oct. 2019 3831-3840

Pashkovsky, A.I., see Khorshev, S.K., TIM June 2019 2113-2120

Pasinetti, S., Hassan, M.M., Eberhardt, J., Lancini, M., Docchio, F., and Sansoni, G., Performance Analysis of the PMD Camboard Picoflexx Time-of-Flight Camera for Markerless Motion Capture Applications; TIM Nov. 2019 4456-4471

Pasquale, M., see Sola, A., TIM June 2019 1765-1773

Passerone, R., see Magnago, V., TIM Nov. 2019 4443-4455

Pathak, C., and Rawat, K., Nonlinear Characterization and Distortion Mitigation in Six-Port Modulator; TIM April 2019 1178-1188

Pathak, P., see Hwang, J., TIM July 2019 2387-2393

Patti, E., see Pau, M., TIM Nov. 2019 4300-4312

Pau, M., see Huang, M., TIM Sept. 2019 3090-3099

Pau, M., Pegoraro, P.A., Monti, A., Muscas, C., Ponci, F., and Sulis, S., Impact of Current and Power Measurements on Distribution System State Estimation Uncertainty; TIM Oct. 2019 3992-4002

Pau, M., Patti, E., Barbierato, L., Estebsari, A., Pons, E., Ponci, F., and Monti, A., Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure; TIM Nov. 2019 4300-4312

Pavlicek, T., see Drazil, K., TIM June 2019 1852-1859

Payagala, S.U., see Rigosi, A.F., TIM June 2019 1870-1878

Pearson, J.E., see Sola, A., TIM June 2019 1765-1773

Pedersini, F., Improving a Commodity Dust Sensor to Enable Particle Size Analysis; TIM Jan. 2019 177-188

Pegoraro, P.A., see Carta, D., TIM Jan. 2019 95-104

Pegoraro, P.A., Brady, K., Castello, P., Muscas, C., and von Meier, A., Line Impedance Estimation Based on Synchrophasor Measurements for Power Distribution Systems; TIM April 2019 1002-1013

Pegoraro, P.A., see Castello, P., TIM May 2019 1313-1321

Pegoraro, P.A., see Pau, M., TIM Oct. 2019 3992-4002

Pegoraro, P.A., Brady, K., Castello, P., Muscas, C., and von Meier, A., Compensation of Systematic Measurement Errors in a PMU-Based Monitoring System for Electric Distribution Grids; TIM Oct. 2019 3871-3882

Pejic, A., see Urekar, M., TIM June 2019 1705-1713

Pelizzo, M.G., see Donazzan, A., TIM April 2019 1165-1177

Pena, I., see Fernandez, M., TIM Feb. 2019 547-557

Peng, L., see Huang, S., TIM June 2019 2229-2236

Peng, Q., see Zhao, Z., TIM Sept. 2019 3200-3210

Peng, Q., see Sui, T., TIM Oct. 2019 3647-3660

Peng, X.Y., see Wu, E.Q., TIM Oct. 2019 3907-3919

Peng, Y., see He, Y., TIM April 2019 1035-1044

Peng, Z., see Ouyang, K., TIM May 2019 1238-1251

Peng, Z., see Tang, D., TIM May 2019 1441-1450

Peng, Z., see Chen, S., TIM Aug. 2019 2755-2767

Peregrina-Barreto, H., see Garcia-Bracamonte, J.E., TIM May 2019 1353-1361

Peretto, L., see Ghaderi, A., TIM July 2019 2656-2658

Peretto, L., see Ghaderi, A., TIM Oct. 2019 3892-3898

Perez-Munoz, J., see Alonso-Valdesueiro, J., TIM Oct. 2019 4094-4103

Perez-Resa, A., Garcia-Bosque, M., Sanchez-Azqueta, C., and Celma, S., Chaotic Encryption Applied to Optical Ethernet in Industrial Control Systems; TIM Dec. 2019 4876-4886

Perez-Resa, A., see Garcia-Bosque, M., TIM Jan. 2019 291-293

Perfetto, L., see D'Antona, G., TIM May 2019 1294-1301

Perng, J., see Kao, I., TIM Feb. 2019 310-324

Perpina, X., Reverter, F., Leon, J., Barajas, E., Vellvehi, M., Jorda, X., and Altet, J., Output Power and Gain Monitoring in RF CMOS Class A Power Amplifiers by Thermal Imaging; TIM Aug. 2019 2861-2870

Persson, M., see Zeng, X., TIM Aug. 2019 2880-2889

Pesavento, M., see Cennamo, N., TIM May 2019 1582-1589

Pesel, E., see Fan, I., TIM June 2019 2129-2135

Pestov, E.E., see Khorshev, S.K., TIM June 2019 2113-2120

Petri, D., see Siebert, J., TIM Sept. 2019 3100-3108

Petrinovic, D., see Ralasic, I., TIM Feb. 2019 502-511

Pham, T.D., Allal, D., Ziade, F., and Bergeault, E., On-Wafer Coplanar Waveguide Standards for S-Parameter Measurements of Balanced Circuits Up to 40 GHz; TIM June 2019 2160-2167

**Phillips, W.,** see Giri, P., TIM April 2019 1210-1220

Piccirilli, M.C., see Luchetta, A., TIM Feb. 2019 439-449

Pichler-Scheder, M., see Scherhaufl, M., TIM Jan. 2019 261-268

Pierz, K., see Kucera, J., TIM June 2019 2106-2112

Pietroiusti, A., see Callari, G., TIM July 2019 2425-2432

Pietrosanto, A., see Capriglione, D., TIM May 2019 1362-1372

Pinheiro, P.P., see Fabiano dos Santos, J.C., TIM Nov. 2019 4234-4241

Pintelon, R., Lataire, J., and Vandersteen, G., FRF Measurements Subject to Missing Data: Quantification of Noise, Nonlinear Distortion, and Time-Varying Effects; TIM Oct. 2019 4175-4187

Pinzi, M., see Addabbo, T., TIM July 2019 2412-2424

Pisani, M., Malengo, A., Santiano, M., Saba, F., and Torchio, D., A Simple Electrostatic Balance for the Milligram Range; TIM June 2019 2223-2228

Pistorio, A., see Ando, B., TIM July 2019 2356-2362

Pistorio, A., see Ando, B., TIM Jan. 2019 280-290

Pistorio, A., see Cennamo, N., TIM May 2019 1582-1589

Pistorio, A., see Ando, B., TIM Aug. 2019 3032-3041

Pisu, S., Cosentino, M., Apa, L., Musaro, A., Rizzuto, E., and Prete, Z.D., Measuring the Maximum Power of an ex vivo Engineered Muscle Tissue With Isovelocity Shortening Technique; TIM July 2019 2404-2411

Plazaola, F., see Alonso-Valdesueiro, J., TIM Oct. 2019 4094-4103

Podobnik, J., see Mihelj, M., TIM July 2019 2610-2620

Pommerenke, D.J., see Chen, X., TIM Dec. 2019 4612-4614

Ponci, F., see Huang, M., TIM Sept. 2019 3090-3099

Ponci, F., see Pau, M., TIM Oct. 2019 3992-4002

Ponci, F., see Pau, M., TIM Nov. 2019 4300-4312

Pons, E., see Pau, M., TIM Nov. 2019 4300-4312

Porter, M.M., see Howcroft, J., TIM July 2019 2451-2459

Portillo, F., see Marshall, C., TIM Feb. 2019 533-546

Potelon, B., see Juan, C.G., TIM July 2019 2621-2634

Pottie, P., see Xu, D., TIM June 2019 2195-2200

Pratschner, S., see Caban, S., TIM Oct. 2019 3484-3493

Prete, Z.D., see Pisu, S., TIM July 2019 2404-2411 Prochazka, P., Impulse Exciter of Rotating Blades With an Increased Excitation

Protim Goswami, M., Montazer, B., and Sarma, U., Design and Characterization of a Fringing Field Capacitive Soil Moisture Sensor; TIM March 2019

Pu, Z., see Tao, X., TIM Nov. 2019 4285-4299

Force; TIM Jan. 2019 300-302

Puranam, S.A., see S. B., P., TIM July 2019 2648-2655

Q

Qi, B., see Tang, T., TIM Aug. 2019 2785-2791

Qi, B., see Gao, C., TIM Oct. 2019 3626-3634

Qian, L., Zhang, Z., Zhao, W., Li, Z., and Fu, Z., A Disturbance Rejection Method for Beam Balance Oscillation Period Measurement; *TIM June 2019* 1973-1981

Qiao, J., see Yue, G., TIM Oct. 2019 3962-3971

Qiao, L., see Fu, N., TIM May 2019 1271-1283

Qiao, Y., see Xia, H., TIM April 2019 1189-1198

Qin, F., see Chang, L., TIM Oct. 2019 3751-3765

Qin, J., see Zhang, X., TIM April 2019 1157-1164

Qin, Y., see Lu, S., TIM March 2019 741-753

Qin, Y., see Gao, J., TIM Dec. 2019 4765-4778

Qiu, Z., Zhuang, Y., Yan, F., Hu, H., and Wang, W., RGB-DI Images and Full Convolution Neural Network-Based Outdoor Scene Understanding for Mobile Robots; TIM Jan. 2019 27-37

Qu, J., see Zhou, K., TIM June 2019 1990-1995

Qu, N., Wang, J., and Liu, J., An Arc Fault Detection Method Based on Current Amplitude Spectrum and Sparse Representation; TIM Oct. 2019 3785-3792

**Qu, R.,** see Mu, B., TIM May 2019 1575-1581

Qu, X., see Yang, Y., TIM Dec. 2019 4618-4628

Quan, C., see Liu, Z., TIM Oct. 2019 3563-3575

Que, Y., Yang, Y., and Lee, H.J., Exposure Measurement and Fusion via Adaptive Multiscale Edge-Preserving Smoothing; TIM Dec. 2019 4663-4674

Quendo, C., see Juan, C.G., TIM July 2019 2621-2634

Quintin, N., see Xu, D., TIM June 2019 2195-2200

R

Rabaey , K., see Molderez , T.R., TIM Dec. 2019 4694-4702

Rabotti, C., see Xu, L., TIM Oct. 2019 4085-4093

Radi, A., Bakalli, G., Guerrier, S., El-Sheimy, N., Sesay, A.B., and Molinari, R., A Multisignal Wavelet Variance-Based Framework for Inertial Sensor Stochastic Error Modeling; *TIM Dec. 2019 4924-4936* 

Raether, P., see Mohns, E., TIM June 2019 2121-2128

Raghuwanshi, S.K., and Kumar, M., Highly Dispersion Tailored Property of Novel Class of Multimode Surface Plasmon Resonance Biosensor Assisted by Teflon and Metamaterial Layers; *TIM Aug.* 2019 2954-2963

Ragusa, A., see Cataliotti, A., TIM Feb. 2019 430-438

Rahimpour, H., and Masoumi, N., Design and Implementation of a High-Sensitivity and Compact-Size IFM Receiver; TIM July 2019 2602-2609

Rahkonen, T., see Schuss, C., TIM May 2019 1485-1493

Raisanen, A.V., see Zheng, J., TIM Nov. 2019 4510-4517

Rak, R.J., see Kolodziej, M., TIM April 2019 1045-1052

Rakshit, A., see Paral, P., TIM Nov. 2019 4276-4284

Ralasic, I., Sersic, D., and Petrinovic, D., Off-the-Shelf Measurement Setup for Compressive Imaging; TIM Feb. 2019 502-511

Ramakrishnan, N., see Kashan, M.A.M., TIM Jan. 2019 303-305

Ramanauskas, R., see Nakutis, Z., TIM March 2019 713-721

Ramirez-Cortes, J.M., see Garcia-Bracamonte, J.E., TIM May 2019 1353-1361

Ramos, H.G., see Feng, B., TIM May 2019 1252-1260

Ran, L., see Gu, Z., TIM July 2019 2659-2661

Rantanen, J., Ruotsalainen, L., Kirkko-Jaakkola, M., and Makela, M., Height Measurement in Seamless Indoor/Outdoor Infrastructure-Free Navigation; TIM April 2019 1199-1209

Rapuano, S., Hwang, C.H., and Xiao, G., Special Issue for I<sup>2</sup>MTC 2018; *TIM May 2019 1235-1237* 

Rasile, A., see Bernieri, A., TIM May 2019 1533-1542

Rawat, K., see Pathak, C., TIM April 2019 1178-1188

Razi-Kazemi, A.A., see Abdollah, M., TIM Sept. 2019 3066-3077

Reatti, A., see Luchetta, A., TIM Feb. 2019 439-449

Reda, K., and Yan, Y., Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors; *TIM May 2019 1467-1476* 

Refai, H.H., see Al Kalaa, M.O., TIM Feb. 2019 325-333

Rehman, M., see Khan, A.U., TIM March 2019 829-836

Reimann, R., see Liao, J., TIM July 2019 2374-2386

Reindl, L.M., see Karacocuk, G., TIM Nov. 2019 4268-4275

Reiss, G., see Sola, A., TIM June 2019 1765-1773

Ren, M., Wang, X., Xiao, G., Chen, M., and Fu, L., Fast Defect Inspection Based on Data-Driven Photometric Stereo; *TIM April 2019 1148-1156* 

Ren, S., Wang, Y., Liang, G., and Dong, F., A Robust Inclusion Boundary Reconstructor for Electrical Impedance Tomography With Geometric Constraints; TIM March 2019 762-773

Ren, S., and Sun, C., A New Method for Calibrating Nonlinear Coefficients of PIGA on Linear Vibrator; TIM Aug. 2019 2898-2906

Ren, Y., see Liu, Z., TIM Oct. 2019 3563-3575

Ren, Z., Trinh, L., Cooke, M., De Hert, S.C., Silvaluengo, J., Ashley, J., Tothill, I.E., and Rodgers, T.L., Development of a Novel Linear ERT Sensor to Measure Surface Deposits; *TIM March* 2019 754-761

Ren, Z., see Zhang, J., TIM Dec. 2019 4723-4735

Reverter, F., Rail-to-Rail Timer-Based Demodulator for AM Sensor Signals; TIM Jan. 2019 306-308

Reverter, F., see Perpina, X., TIM Aug. 2019 2861-2870

Rex, M.M., see Hwang, J., TIM July 2019 2387-2393

Riano-Rojas, J.C., see Cortes-Osorio, J.A., TIM Oct. 2019 4038-4050

Riba, J., see Kadechkar, A., TIM Dec. 2019 4825-4833

**Ribeiro, A.L.,** see Feng, B., TIM May 2019 1252-1260

Ridler, N.M., see Azeez, Y.F., TIM Jan. 2019 294-296

Rietveld, G., see Houtzager, E., TIM June 2019 1653-1658

Rietveld, G., see Wright, P.S., TIM June 2019 1688-1695

Rietveld, G., Mohns, E., Houtzager, E., Badura, H., and Hoogenboom, D., Comparison of Reference Setups for Calibrating Power Transformer Loss Measurement Systems; *TIM June 2019 1732-1739* 

Rigosi, A.F., Hu, J., Jarrett, D.G., Newell, D.B., Elmquist, R.E., Panna, A.R., Payagala, S.U., Kruskopf, M., Kraft, M.E., Jones, G.R., Wu, B., Lee, H., and Yang, Y., Graphene Devices for Tabletop and High-Current Quantized Hall Resistance Standards; *TIM June 2019 1870-1878* 

**Rinaldi, S.,** Ferrari, P., Flammini, A., Sisinni, E., and Vezzoli, A., Uncertainty Analysis in Time Distribution Mechanisms for OMS Smart Meters: The Last-Mile Time Synchronization Issue; *TIM March* 2019 693-703

Rinaldi, S., see Rizzi, M., TIM April 2019 1101-1111

Rinaldi, S., Pasetti, M., Flammini, A., Ferrari, P., Sisinni, E., and Simoncini, F., A Testing Framework for the Monitoring and Performance Analysis of Distributed Energy Systems; TIM Oct. 2019 3831-3840

Rizzi, M., Depari, A., Ferrari, P., Flammini, A., Rinaldi, S., and Sisinni, E., Synchronization Uncertainty Versus Power Efficiency in LoRaWAN Networks; TIM April 2019 1101-1111

Rizzo, C., see Hartman, M.T., TIM June 2019 2268-2273

**Rizzuto, E.,** see Pisu, S., TIM July 2019 2404-2411

Robles, G., Shafiq, M., and Martinez-Tarifa, J.M., Multiple Partial Discharge Source Localization in Power Cables Through Power Spectral Separation and Time-Domain Reflectometry; *TIM Dec. 2019 4703-4711* 

Roccato, P.E., and Capra, P.P., Using High-Precision Multimeter Digitizer for High Short-Circuit Current Calibration; *TIM June 2019 2100-2105* 

Roccato, P.E., see Crotti, G., TIM Oct. 2019 3861-3870

Rodgers, T.L., see Ren, Z., TIM March 2019 754-761

Rodrigo, I., see Alonso-Valdesueiro, J., TIM Oct. 2019 4094-4103

Rodriguez-Alvarez, M., see Jimenez-Lopez, M., TIM Feb. 2019 632-641

Roell, M., see Karacocuk, G., TIM Nov. 2019 4268-4275

Rogers, K.A., see Williams, P.A., TIM June 2019 1833-1839

Rogers, P., see Haigh, S., TIM March 2019 646-655

Rogozhkina, N.V., see Khorshev, S.K., TIM June 2019 2113-2120

Roscoe, A.J., see Wright, P.S., TIM June 2019 1188-1695

Rossi, G.B., Crenna, F., and Palazzo, A., A Proposal for a More User-Oriented GUM; *TIM May 2019 1343-1352* 

Rossi, G.B., Crenna, F., and Palazzo, A., Probabilistic Framework for Dynamic Measurements for Markovian Models With a Uniform Prior for the Measurand; *TIM Nov. 2019 4357-4367* 

Roy, D., Babu, P., and Tuli, S., Sparse Reconstruction-Based Thermal Imaging for Defect Detection; *TIM Nov. 2019 4550-4558* 

Roy, N., see Stone, T., TIM Aug. 2019 2979-2987

Roy Chaudhuri, R., see Acharyya, D., TIM Aug. 2019 3004-3011

Ruble, Z., see Schmidt, E., TIM Aug. 2019 2768-2784

Rudic, B., see Scherhaufl, M., TIM Jan. 2019 261-268

Ruffier, F., see Al Hage, J., TIM Aug. 2019 2988-2995

Ruggiero, A., see Liguori, C., TIM May 2019 1412-1423

Ruotsalainen, L., see Rantanen, J., TIM April 2019 1199-1209

Rupitsch, S.J., see Linnert, M.A., TIM May 2019 1284-1293

Rupp, M., see Caban, S., TIM Oct. 2019 3484-3493

Russo, D., see Liguori, C., TIM May 2019 1412-1423

Rybski, R., see Miroslaw, M., TIM June 2019 1806-1813

Rybski, R., Kaczmarek, J., Koziol, M., and Kampik, M., Errors of Multiplying D/A Converters Used for Precise AC Voltage Division; *TIM June 2019* 1821-1826

Rybski, R., see Krzywoszyja, G., TIM Oct. 2019 3776-3784

**Rydblom, S.,** Thornberg, B., and Olsson, E., Field Study of LWC and MVD Using the Droplet Imaging Instrument; *TIM Feb. 2019 614-622* 

Rydler, K., see Bergsten, T., TIM June 2019 2041-2046

Ryger, I., see Williams, P.A., TIM June 2019 1833-1839

Rysz, A., see Kolodziej, M., TIM April 2019 1045-1052

S

S. B., P., Puranam, S.A., and Goel, S., 3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications; *TIM July* 2019 2648-2655

Saavedra, R., Tovar, P., Amaral, G.C., and Fanzeres, B., Full Optical Fiber Link Characterization With the BSS-Lasso; TIM Oct. 2019 4162-4174

Saba, F., see Pisani, M., TIM June 2019 2223-2228

Sabater-Navarro, J.M., see Juan, C.G., TIM July 2019 2621-2634

Sabatini, V., Di Benedetto, M., and Lidozzi, A., Synchronous Adaptive Resolver-to-Digital Converter for FPGA-Based High-Performance Control Loops; TIM Oct. 2019 3972-3982

Sachica, M., and Martinez, A., Analysis of Correlation in the Intercomparison of DC Voltage Reference Standards; *TIM June 2019 2168-2171* 

Saha, A., see Das, S., TIM Sept. 2019 3308-3320

Saha, P., Ghorai, S., Tudu, B., Bandyopadhyay, R., and Bhattacharyya, N., Tea Quality Prediction by Sparse Modeling of Electronic Tongue Signals; *TIM Sept. 2019 3046-3053* 

Saha, T., see Kashan, M.A.M., TIM Jan. 2019 303-305

Saitoh, E., see Sola, A., TIM June 2019 1765-1773

Sakamaki, R., and Horibe, M., Uncertainty Analysis Method Including Influence of Probe Alignment on On-Wafer Calibration Process; TIM June 2019 1748-1755

Salama, K.N., see Alhoshany, A., TIM Feb. 2019 392-401

Salas, J., see Gonzalez-Chavez, O., TIM Nov. 2019 4387-4399

Salcic, Z., see Tian, Q., TIM Oct. 2019 4028-4037

Saleh, M., Oueidat, G., Elhajj, I.H., and Asmar, D., In Situ Measurement of Oil Slick Thickness; TIM July 2019 2635-2647

Salehi, Y., Fatehi, A., and Nayebi, M.A., State Estimation of Slow-Rate Integrated Measurement Systems in the Presence of Parametric Uncertainties; TIM Oct. 2019 3983-3991

Salicone, S., see Ferrero, A., TIM Nov. 2019 4335-4347

Salomonski, N., see Sheinker, A., TIM Jan. 2019 116-128

Samani, A., see Hesabgar, S.M., TIM July 2019 2479-2490

Sammarco, I., see Callari, G., TIM July 2019 2425-2432

Sanchez-Azqueta, C., see Perez-Resa, A., TIM Dec. 2019 4876-4886

Sanchez-Azqueta, C., see Garcia-Bosque, M., TIM Jan. 2019 291-293

Sanchez-Pena, J.M., see Lopez-Fraguas, E., TIM Dec. 2019 4913-4923

Sanders, A.W., see Gu, D., TIM June 2019 2280-2287

Sansoni, G., see Pasinetti, S., TIM Nov. 2019 4456-4471

Santamaria, B., see Maigler, M.V., TIM Sept. 2019 3193-3199

Santiago, M.F.d.S., see Melo, A.A.d., TIM May 2019 1554-1560

Santiano, M., see Pisani, M., TIM June 2019 2223-2228

Santin, A.O., see Melo, W.S., TIM May 2019 1503-1514

Santoni, F., De Angelis, A., Skog, I., Moschitta, A., and Carbone, P., Calibration and Characterization of a Magnetic Positioning System Using a Robotic Arm; *TIM May 2019 1494-1502* 

Santos, H.R.D., see Dos Santos Silva, F.J., TIM Nov. 2019 4493-4501

Santos, T.B.R., see Mellenthin, M.M., TIM Sept. 2019 3137-3150

Sanz-Pascual, M.T., see Maya-Hernandez, P.M., TIM Oct. 2019 3514-3523

Sanza, F.J., see Maigler, M.V., TIM Sept. 2019 3193-3199

Sarkar, M., see Dashpute, A., TIM Jan. 2019 160-168

Sarma, U., see Protim Goswami, M., TIM March 2019 913-922

Sarno, D., see Baker, C., TIM Oct. 2019 3920-3931

Satya Raja Sekhar, K., see Sengupta, R., TIM June 2019 1814-1820

Saunoris, M., see Nakutis, Z., TIM March 2019 713-721

Scalise, L., and Grassini, S., Guest Editorial The 2018 IEEE International Symposium on Medical Measurements and Applications Special Section; *TIM July 2019 2394-2395* 

Schaffner, M., see Liao, J., TIM July 2019 2374-2386

Scherer, H., see Gotz, M., TIM June 2019 2027-2033

Scherer, H., see Giblin, S.P., TIM June 2019 1996-2002

Scherer, H., see Fan, I., TIM June 2019 2129-2135

Scherer, H., Drung, D., Krause, C., Gotz, M., and Becker, U., Electrometer Calibration With Sub-Part-Per-Million Uncertainty; TIM June 2019 1887-1894

Scherhaufl, M., Rudic, B., Stelzer, A., and Pichler-Scheder, M., A Blind Calibration Method for Phase-of-Arrival-Based Localization of Passive UHF RFID Transponders; TIM Jan. 2019 261-268

Schlaghecke, S., see Kitzig, J., TIM April 2019 1014-1025

Schlamminger, S., see Chao, L., TIM June 2019 2176-2182

Schmidt, E., Ruble, Z., Akopian, D., and Pack, D.J., Software-Defined Radio GNSS Instrumentation for Spoofing Mitigation: A Review and a Case Study; *TIM Aug.* 2019 2768-2784

Schmitt, L., see Hamelmann, P., TIM Sept. 2019 3221-3231

Schock, J., see Kopaczka, M., TIM May 2019 1389-1401

Schumacher, H.W., see Sola, A., TIM June 2019 1765-1773

Schuss, C., Fabritius, T., Eichberger, B., and Rahkonen, T., Moving Photovoltaic Installations: Impacts of the Sampling Rate on Maximum Power Point Tracking Algorithms; *TIM May 2019 1485-1493* 

Schwindt, P.D.D., see Borna, A., TIM Feb. 2019 493-501

Scolletta, S., see Addabbo, T., TIM July 2019 2469-2478

Sedlacek, R., see Kim, D.B., TIM June 2019 1941-1947

See, K., see Zhao, Z., TIM Jan. 2019 169-176

Seidman, S.J., see Al Kalaa, M.O., TIM Feb. 2019 325-333

Seifert, F., see Chao, L., TIM June 2019 2176-2182

Sengupta, R., Adhiya, A., Satya Raja Sekhar, K., and Kaur, R., Measurement of Complex Dielectric Constant Using Optical Method; *TIM June 2019 1814-*1820

Seong, D., see Choi, B., TIM May 2019 1382-1388

Serrano Galvez, P., Butcher, M., and Masi, A., A Dual-Interferometer-Based Angular Measurement System With Absolute Angle Recovery Method; *TIM March* 2019 864-873

Sersic, D., see Ralasic, I., TIM Feb. 2019 502-511

Sesay, A.B., see Radi, A., TIM Dec. 2019 4924-4936

Setoodehnia, K., see Marshall, C., TIM Feb. 2019 533-546

Shabany, M., see Abbasi, M., TIM Sept. 2019 3339-3349

Shafiq, M., see Robles, G., TIM Dec. 2019 4703-4711

Shaikh, M.A.H., and Barbe, K., Wiener–Hammerstein System Identification: A Fast Approach Through Spearman Correlation; TIM May 2019 1628-1636

Shamsir, S., see Yuan, S., TIM Aug. 2019 2871-2879

**Shan, C.,** see Jin, Y., TIM April 2019 1026-1034

Shang, F., see Gao, S., TIM Dec. 2019 4887-4895

Shang, J., see Gu, F., TIM Aug. 2019 2705-2713

Shao, Y., see Ding, X., TIM Nov. 2019 4242-4252

Sharma, K., Agili, S.S., and Morales, A.W., Wideband Dielectric Characterization of 3-D Printable Triethylene Glycol Dimethacrylate Ester Plastic; TIM Nov. 2019 4419-4426

Shaw, G.A., and Stirling, J., Measurement of Submilligram Masses Using Electrostatic Force; TIM June 2019 2015-2020

Shayei, A., see Abbasi, M., TIM Sept. 2019 3339-3349

Sheinker, A., Ginzburg, B., Salomonski, N., and Engel, A., Localization of a Mobile Platform Equipped With a Rotating Magnetic Dipole Source; TIM Jan. 2019 116-128

Sheldon, A., Belostotski, L., Messier, G., and Madanayake, A., Impact of Noise Bandwidth on Noise Figure; TIM July 2019 2662-2664

Shen, F., see Gu, Z., TIM July 2019 2659-2661

**Shen, S.,** see Han, X., TIM Aug. 2019 2890-2897

Shen, Y., see Tan, C., TIM May 2019 1590-1601

Shen, Y., Liu, Z., and Zhang, G., PAC Interaction Inspection Using Real-Time Contact Point Tracking; TIM Oct. 2019 4051-4064

Sheng, B., see Huang, J., TIM Sept. 2019 3253-3267

Sheng, R.S.F., see Wu, E.Q., TIM Oct. 2019 3907-3919

Shenil, P.S., and George, B., Development of a Nonintrusive True-RMS AC Voltage Measurement Probe; TIM Oct. 2019 3899-3906

Shi, J., see Li, J., TIM Feb. 2019 623-631

Shi, L., Zhao, Y., Liu, G., Chen, S., Wang, Y., and Shi, Y., A Robust Pedestrian Dead Reckoning System Using Low-Cost Magnetic and Inertial Sensors; TIM Aug. 2019 2996-3003

Shi, L., He, Y., Li, B., Wu, Y., Huang, Y., and Cheng, T., On-Line Measurement of Dynamic Tilt Angle by Compensating Gyroscope Drift Error; TIM Sept. 2019 3244-3252

Shi, T., see Wang, T., TIM March 2019 818-828

Shi, T., see Wang, F., TIM Oct. 2019 3494-3502

Shi, Y., see Zhou, K., TIM June 2019 1990-1995

Shi, Y., see Shi, L., TIM Aug. 2019 2996-3003

Shi, Z., Zhang, J., Pan, X., Song, Y., Lin, J., and He, Q., Self-Calibration and Verification of Phase Angle Errors of Two Voltage Dividers at High Frequencies; TIM June 2019 2053-2059

Shin, J., see Choi, B., TIM May 2019 1382-1388

Shin, S., Kim, M., and Choi, S.B., Ultrasonic Distance Measurement Method With Crosstalk Rejection at High Measurement Rate; TIM April 2019 972-

Shin, Y., see Lee, C., TIM Jan. 2019 215-224

Shirmohammadi, S., Editor-in-Chief's Year-End Message; TIM Dec. 2019 4610-4611

Shirmohammadi, S., see Ooi, B.Y., TIM May 2019 1522-1532

Shmuel, A., see Lahmiri, S., TIM March 2019 791-796

Shu, Y., see Yang, R., TIM Aug. 2019 3012-3019

Siebert, J., Petri, D., and Fedrizzi, M., From Measurement to Decision: Sensitivity of Decision Outcome to Input and Model Uncertainties; TIM Sept. 2019 3100-3108

Sienkowski, S., see Miczulski, W., TIM March 2019 895-902

Silva, T.B.d., see Melo, A.A.d., TIM May 2019 1554-1560

Silvaluengo, J., see Ren, Z., TIM March 2019 754-761

Simoncini, F., see Rinaldi, S., TIM Oct. 2019 3831-3840

Simons, B., see So, E., TIM June 2019 1680-1687

Simpson, O., see Luo, Q., TIM March 2019 667-679

Sinatra, V., see Ando, B., TIM May 2019 1477-1484

Singh, K.M., Simultaneous Estimation of Moving-Vibration Parameters by Sliding Goertzel Algorithm in PLL Technique; TIM Feb. 2019 334-343

Singh, S.K., see Udmale, S.S., TIM Nov. 2019 4222-4233

**Sippel, E.,** see Hehn, M., TIM Oct. 2019 4135-4145

Siqueira Dias, J.A., see de Morais Franca, M.B., TIM Feb. 2019 606-613

Sira, M., Kieler, O., and Behr, R., A Novel Method for Calibration of ADC Using JAWS; TIM June 2019 2091-2099

Sira, M., see Maslan, S., TIM June 2019 1860-1869

Sisinni, E., see Rinaldi, S., TIM March 2019 693-703

Sisinni, E., see Nikonowicz, J., TIM Jan. 2019 105-115

Sisinni, E., see Rizzi, M., TIM April 2019 1101-1111

Sisinni, E., see Rinaldi, S., TIM Oct. 2019 3831-3840

Sisniega, B., see Alonso-Valdesueiro, J., TIM Oct. 2019 4094-4103

Siyu, E., see Zhangd, Y.-N., TIM Nov. 2019 4566-4574

Skalicka, T., see Maslan, S., TIM June 2019 1860-1869

Skog, I., see Santoni, F., TIM May 2019 1494-1502

Sloan, R., see Carrigan, T.D., TIM Feb. 2019 586-594

Slomovitz, D., Brehm, M., Izquierdo, D., Faverio, C., Casais, J.L., and Cazabat, M.H., Determination of Voltage Dependence in High-Voltage Standard Capacitors; TIM June 2019 2136-2143

Smith, K., see Tan, C., TIM May 2019 1590-1601

So, E., Verhoeven, R., Simons, B., Parks, H.V., and Angelo, D., A High-Precision Current Transformer for Loss Measurements of EHV Shunt Reactors; TIM June 2019 1680-1687

Sola, A., Saitoh, E., Jin, H., Watzman, S.J., Boona, S., Heremans, J., Jungfleisch, M.B., Zhang, W., Pearson, J.E., Hoffmann, A., Schumacher, H.W., Basso, V., Kuepferling, M., Pasquale, M., ne Meier, D.C., Reiss, G., Kuschel, T., Kikkawa, T., and Uchida, K., Spincaloritronic Measurements: A Round Robin Comparison of the Longitudinal Spin Seebeck Effect; TIM June 2019 1765-

Soleimani, Y., Cruz, S.M.A., and Haghjoo, F., Broken Rotor Bar Detection in Induction Motors Based on Air-Gap Rotational Magnetic Field Measurement; TIM Aug. 2019 2916-2925

Sommella, P., see Capriglione, D., TIM May 2019 1362-1372

Sommella, P., see Liguori, C., TIM May 2019 1412-1423

Sondej, D., see Szplet, R., TIM Nov. 2019 4348-4356

Song, J., see Zhao, J., TIM Sept. 2019 3268-3277

Song, J., see Gao, H., TIM Nov. 2019 4427-4442

Song, R., see Chen, X., TIM Oct. 2019 3600-3615

Song, S., see Dai, H., TIM Sept. 2019 3379-3386

Song, X., Zhou, Y., Witte, R.S., and Ming, D., Noninvasive Acoustoelectric Imaging of Resistivity Distribution Based on Lead Field Theory; TIM Dec. 2019 4779-4786

Song, Y., see Shi, Z., TIM June 2019 2053-2059

Soret, J., see Aranzabal, N., TIM April 2019 1062-1070

Spiegel, T., see Funck, T., TIM June 2019 2003-2006

Srinivasan, R., see Tejaswini, K.K., TIM May 2019 1602-1610

Steger, H., see Aranzabal, N., TIM April 2019 1062-1070

Stelzer, A., see Scherhaufl, M., TIM Jan. 2019 261-268

Stirling, J., see Shaw, G.A., TIM June 2019 2015-2020

Stirling, J., see Chao, L., TIM June 2019 2176-2182

Stone, D.A., see Harrison, H.T., TIM Sept. 2019 3151-3165

Stone, N., see Stone, T., TIM Aug. 2019 2979-2987

Stone, T., Stone, N., Roy, N., Melton, W., Jackson, J.B., and Nelakuditi, S., On Smart Soccer Ball as a Head Impact Sensor; TIM Aug. 2019 2979-2987

Stremfelj, J., and Agrez, D., Estimation of the Power Quantities Below One Signal Period Using DFT Coefficients; TIM June 2019 1696-1704

Struszewski, P., and Bieler, M., Asynchronous Optical Sampling for Laser-Based Vector Network Analysis on Coplanar Waveguides; TIM June 2019 2295-2302

Su, B., Chen, H., Zhu, Y., Liu, W., and Liu, K., Classification of Manufacturing Defects in Multicrystalline Solar Cells With Novel Feature Descriptor; TIM Dec. 2019 4675-4688

Su, D., see Wang, J., TIM Aug. 2019 3042-3044

Su, F., see Tsai, H., TIM May 2019 1561-1574

Su, J., see Yu, B., TIM Oct. 2019 4146-4151

Su, S., see Dai, H., TIM Sept. 2019 3379-3386

Su, Z., see Wang, Q., TIM Oct. 2019 3433-3445

Subbotin, A.N., see Khorshev, S.K., TIM June 2019 2113-2120

Sudhakar, T., see Tejaswini, K.K., TIM May 2019 1602-1610

Sui, T., Zhao, Z., Xie, S., Xie, Y., Zhao, Y., Huang, Q., Xu, J., and Peng, Q., A 2.3-ps RMS Resolution Time-to-Digital Converter Implemented in a Low-Cost Cyclone V FPGA; TIM Oct. 2019 3647-3660

Sulis, S., see Carta, D., TIM Jan. 2019 95-104

Sulis, S., see Ferrero, R., TIM Oct. 2019 3799-3800

Sulis, S., see Pau, M., TIM Oct. 2019 3992-4002

Sumathi, P., see Tyagi, T., TIM July 2019 2560-2569

Sun, C., see Ren, S., TIM Aug. 2019 2898-2906

Sun, G., see Huang, M., TIM Sept. 2019 3090-3099

Sun, J., Wang, P., Luo, Y., and Li, W., Surface Defects Detection Based on Adaptive Multiscale Image Collection and Convolutional Neural Networks; TIM Dec. 2019 4787-4797

Sun, L., Chen, T., Chen, X., Ho, W.K., Ling, K., Tseng, K., and Amaratunga, G.A.J., Optimum Placement of Phasor Measurement Units in Power Systems; TIM Feb. 2019 421-429

Sun, R., see Yang, B., TIM Dec. 2019 4736-4745

Sun, S., Yin, Y., Wang, X., and Xu, D., Robust Visual Detection and Tracking Strategies for Autonomous Aerial Refueling of UAVs; TIM Dec. 2019 4640-

Sun, X., see Deng, H., TIM Oct. 2019 3950-3961

Sun, Y., see Luo, Q., TIM March 2019 667-679

Sun, Y., see Yang, Z., TIM Dec. 2019 4906-4912

Sunol, F., Ochoa, D.A., and Garcia, J.E., High-Precision Time-of-Flight Determination Algorithm for Ultrasonic Flow Measurement; *TIM Aug.* 2019 2724-2732

Survawanshi, H.M., see Ballal, M.S., TIM Oct. 2019 4015-4027

Sutinjo, A.T., see Kim, D., TIM Nov. 2019 4313-4325

Svoboda, P., see Kucera, J., TIM June 2019 2106-2112

Svoboda, P., see Caban, S., TIM Oct. 2019 3484-3493

Swamy, V., see Kashan, M.A.M., TIM Jan. 2019 303-305

Szplet, R., Szymanowski, R., and Sondej, D., Measurement Uncertainty of Precise Interpolating Time Counters; TIM Nov. 2019 4348-4356

Szymanowski, R., see Szplet, R., TIM Nov. 2019 4348-4356

Т

Tabarsa, H., Hejazi, M.A., and Gharehpetian, G.B., Detection of HV Winding Radial Deformation and PD in Power Transformer Using Stepped-Frequency Hyperboloid Method; *TIM Aug.* 2019 2934-2942

Taddei, N., see Addabbo, T., TIM July 2019 2412-2424

**Tahir, M.,** Moazzam, A., and Ali, K., A Stochastic Optimization Approach to Magnetometer Calibration With Gradient Estimates Using Simultaneous Perturbations; *TIM Oct. 2019 4152-4161* 

Takahashi, D., Iizuka, T., Mai-Khanh, N.N., Nakura, T., and Asada, K., Fault Detection of VLSI Power Supply Network Based on Current Estimation From Surface Magnetic Field; TIM July 2019 2519-2530

Tan, C., see Xiao, Z., TIM July 2019 2460-2468

Tan, C., Shen, Y., Smith, K., Dong, F., and Escudero, J., Gas-Liquid Flow Pattern Analysis Based on Graph Connectivity and Graph-Variate Dynamic Connectivity of ERT; TIM May 2019 1590-1601

Tan, J., see Li, Z., TIM June 2019 2208-2214

Tan, T., see Mu, B., TIM May 2019 1575-1581

Tan, Y., see Yu, H., TIM March 2019 656-666

Tancock, S., Arabul, E., and Dahnoun, N., A Review of New Time-to-Digital Conversion Techniques; TIM Oct. 2019 3406-3417

Tang, D., Wang, J., Hu, W., Peng, Z., Chiang, Y., and Li, C., A DC-Coupled High Dynamic Range Biomedical Radar Sensor With Fast-Settling Analog DC Offset Cancelation; TIM May 2019 1441-1450

Tang, Q., see Du, C., TIM Nov. 2019 4559-4565

Tang, T., Niu, S., Chen, X., and Qi, B., Disturbance Observer-Based Control of Tip-Tilt Mirror for Mitigating Telescope Vibrations; *TIM Aug. 2019 2785-2791* 

Tang, X., and Mandal, S., Indoor Occupancy Awareness and Localization Using Passive Electric Field Sensing; TIM Nov. 2019 4535-4549

Tao, B., see Zhangd, Y.-N., TIM Nov. 2019 4566-4574

Tao, X., Yi, J., Pu, Z., and Xiong, T., State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements; TIM Nov. 2019 4285-4299

Tao, Y., see Li, Z., TIM March 2019 704-712

Tao, Y., see Ye, C., TIM July 2019 2594-2601

Taylor, B.K., see Huang, G., TIM Dec. 2019 4937-4944

Tebbenjohanns, F., see Liao, J., TIM July 2019 2374-2386

Teixeira, F.L., see Zeeshan, Z., TIM Feb. 2019 462-473

Tejaswini, K.K., George, B., Kumar, V.J., Srinivasan, R., and Sudhakar, T., A Capacitive-Coupled Noncontact Probe for the Measurement of Conductivity of Liquids; TIM May 2019 1602-1610

Tellini, B., see Buffi, A., TIM March 2019 845-853

Testa, A., see Collin, A.J., TIM Oct. 2019 3883-3891

Teyssendier de la Serve, M., see Guillory, J., TIM June 2019 2260-2267

Thornberg, B., see Rydblom, S., TIM Feb. 2019 614-622

Tian, B., see Yi, X., TIM Dec. 2019 4945-4953

Tian, L., see Luo, Q., TIM March 2019 667-679

Tian, Q., Wang, K.I., and Salcic, Z., Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking; TIM Oct. 2019 4028-4037

Tian, S., see Yu, Z., TIM May 2019 1543-1553

Tian, Y., see Zhang, J., TIM Dec. 2019 4723-4735

Tian, Y., see Mu, B., TIM May 2019 1575-1581

Tiany, G., see Zhu, J., TIM May 2019 1373-1381

Tinarelli, R., see Ghaderi, A., TIM July 2019 2656-2658

Tinarelli, R., see Ghaderi, A., TIM Oct. 2019 3892-3898

**Tine, G.,** see Cataliotti, A., TIM Feb. 2019 430-438

Tine, G., see Cataliotti, A., TIM May 2019 1322-1332

**Tiwari, N.K.,** and Akhtar, M.J., Partially Filled Substrate Integrated Waveguide-Based Microwave Technique for Broadband Dielectric Characterization; *TIM Aug.* 2019 2907-2915

Tojima, Y., see Kinoshita, M., TIM June 2019 2274-2279

Tong, J., see Wang, T., TIM March 2019 818-828

Torchio, D., see Pisani, M., TIM June 2019 2223-2228

Torres-Gonzalez, F., see Jimenez-Lopez, M., TIM Feb. 2019 632-641

Torrisi, G., see Ando, B., TIM May 2019 1477-1484

Toscani, S., see Faifer, M., TIM May 2019 1611-1618

Toscani, S., see Castello, P., TIM May 2019 1313-1321

Toscani, S., see Faifer, M., TIM Aug. 2019 2800-2807

Toscani, S., see Cristaldi, L., TIM Aug. 2019 2792-2799

Toscani, S., see Faifer, M., TIM Oct. 2019 3823-3830

**Tothill, I.E.,** see Ren, Z., TIM March 2019 754-761

Tovar, P., see Saavedra, R., TIM Oct. 2019 4162-4174

Trinchera, B., see Kim, D.B., TIM June 2019 1941-1947

Trinh, L., see Ren, Z., TIM March 2019 754-761

Truong, D., see Guillory, J., TIM June 2019 2260-2267

Tsai, H., Su, F., Chou, C., Lin, Y., Huang, K., Yang, Y.J., Kuo, L., Liao, L., and Yu, H., Wearable Inverse Light-Emitting Diode Sensor for Measuring Light Intensity at Specific Wavelengths in Light Therapy; *TIM May 2019* 1561, 1574

Tseng, K., see Sun, L., TIM Feb. 2019 421-429

Tseng, V., and Chang, C., A Cost-and-Time Effective Way to Determine Minimum Target Size of Micropower Impulse Radar Sensor; TIM Sept. 2019 3321, 3328

Tu, H., see Lin, C., TIM Aug. 2019 2830-2848

Tuckey, P., see Xu, D., TIM June 2019 2195-2200

Tudu, B., see Saha, P., TIM Sept. 2019 3046-3053

Tuli, S., see Roy, D., TIM Nov. 2019 4550-4558

**Turhan, E.,** see Erkan, O., TIM June 2019 2201-2207

Tyagi, T., and Sumathi, P., Frequency Estimation Based on Moving-Window DFT With Fractional Bin-Index for Capacitance Measurement; TIM July 2019 2560-2569

U

Uchida, K., see Sola, A., TIM June 2019 1765-1773

Udmale, S.S., and Singh, S.K., Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification; TIM Nov. 2019 4222-4233

Ukshe, A., see Astafev, E., TIM Nov. 2019 4412-4418

Umeda, T., see Mizushima, S., TIM June 2019 1879-1886

Upadrashta, D., see Maheshwari, M., TIM Aug. 2019 2943-2953

Urbonas, J., Kim, K., and Aaen, P.H., Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers; TIM Aug. 2019 2971-2978

Urekar, M., Gazivoda, N., and Pejic, A., The Core for High-Precision Stochastic Smart Grid Meter Based on Low-Resolution Flash ADC; TIM June 2019 1705, 1713

Ureten, O., see Eldemerdash, Y.A., TIM Feb. 2019 642-644

V

Vadrevu, S., and Manikandan, M.S., A Robust Pulse Onset and Peak Detection Method for Automated PPG Signal Analysis System; TIM March 2019 807-

van den Brom, H.E., see Ireland, J., TIM June 2019 2066-2071

van den Brom, H.E., van Leeuwen, R., and Hornecker, R., Characterization of DC Current Sensors With AC Distortion for Railway Applications; *TIM June* 2019 2084-2090

Van Haandel, A.C., see Dos Santos Silva, F.J., TIM Nov. 2019 4493-4501 van Leeuwen, R., see van den Brom, H.E., TIM June 2019 2084-2090

Van Lil, E., see Vanhamel, J., TIM March 2019 874-881

Vandersteen, G., see Pintelon, R., TIM Oct. 2019 4175-4187

Vanhamel, J., Berkenbosch, S., Dekemper, E., Leroux, P., Neefs, E., and Van Lil, E., Practical Driving Electronics for an AOTF-Based NO<sub>2</sub> Camera; *TIM March* 2019 874-881

Vellvehi, M., see Perpina, X., TIM Aug. 2019 2861-2870

Velychko, O., and Isaiev, V., Comparison of Two Methods for Phase Angle Measurement; TIM June 2019 1740-1747

Vergaz, R., see Lopez-Fraguas, E., TIM Dec. 2019 4913-4923

Verhelst, M., see Molderez, T.R., TIM Dec. 2019 4694-4702

Verhoeven, R., see So, E., TIM June 2019 1680-1687

Vezzoli, A., see Rinaldi, S., TIM March 2019 693-703

Vignoli, V., see Addabbo, T., TIM March 2019 837-844

Vignoli, V., see Addabbo, T., TIM July 2019 2412-2424

Vignoli, V., see Addabbo, T., TIM July 2019 2469-2478

Vignoli, V., see Addabbo, T., TIM July 2019 2363-2373

Vishwakarma, A., and Bhuyan, M.K., Image Fusion Using Adjustable Non-subsampled Shearlet Transform; TIM Sept. 2019 3367-3378

Vitorino, B.A.F., Catunda, S.Y.C., Belfort, D.R., and Freire, R.C.S., Autorange Thermal Sigma–Delta Converter for Incident Radiation Measurement; *TIM March* 2019 774-781

Vo, T., see Williams, P.A., TIM June 2019 1833-1839

Von Lau, E., see Lee, J.R., TIM Nov. 2019 4518-4525

von Meier, A., see Pegoraro, P.A., TIM April 2019 1002-1013

von Meier, A., see Pegoraro, P.A., TIM Oct. 2019 3871-3882

Vossiek, M., see Hehn, M., TIM Oct. 2019 4135-4145

Vullings, R., see Hamelmann, P., TIM Sept. 2019 3221-3231

Vybornov, P., Technical and Physical Limitations in the Determination of Background Mercury Concentration; TIM Oct. 2019 3712-3717

#### W

Wada, M., Okubo, S., Kashiwagi, K., Hong, F., Hosaka, K., and Inaba, H., Evaluation of Fiber Noise Induced in Ultrastable Environments; *TIM June 2019* 2246-2252

Wallace, B., see Howcroft, J., TIM July 2019 2451-2459

Wallerand, J., see Guillory, J., TIM June 2019 2260-2267

Waltrip, B., Edwards, S., Nelson, T., and Berilla, M., A Sampling Wattmeter With Extended Frequency Range; TIM June 2019 2187-2194

Wang, B., see Wang, Q., TIM Sept. 2019 3350-3357

Wang, B., see Huang, J., TIM Sept. 2019 3253-3267

Wang, C., Cao, P., Ding, H., Wang, X., and Lin, D., Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes; *TIM April* 2019 1053-1061

Wang, C., see Mu, Y., TIM Oct. 2019 3677-3685

Wang, D., see Li, Z., TIM June 2019 2208-2214

Wang, F., Zhuang, Y., Gu, H., and Hu, H., Automatic Generation of Synthetic LiDAR Point Clouds for 3-D Data Analysis; TIM July 2019 2671-2673

Wang, F., see Chen, L., TIM June 2019 1714-1723

Wang, F., see Chen, L., TIM Sept. 2019 3054-3065

Wang, F., Shi, T., Yan, Y., Wang, Z., and Xia, C., Resolver-To-Digital Conversion Based on Acceleration-Compensated Angle Tracking Observer; TIM Oct. 2019 3494-3502

Wang, H., see Gao, J., TIM Dec. 2019 4765-4778

Wang, H., see Yuan, S., TIM Aug. 2019 2871-2879

Wang, H., see Zhao, J., TIM Sept. 2019 3268-3277

Wang, H., see Liu, M., TIM Oct. 2019 3718-3732

Wang, H., Liu, Z., Nunez, A., and Dollevoet, R., Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections; *TIM Oct.* 2019 3536-3547

Wang, J., see Yu, H., TIM March 2019 656-666

Wang, J., Yan, Z., Liu, W., Yan, X., and Fan, J., Improved-Sensitivity Resonant Electric-Field Probes Based on Planar Spiral Stripline and Rectangular Plate Structure; *TIM March* 2019 882-894

Wang, J., see Gu, Z., TIM July 2019 2659-2661

Wang, J., see Wang, L., TIM Feb. 2019 450-461

Wang, J., see Tang, D., TIM May 2019 1441-1450

Wang, J., see Huang, L., TIM June 2019 2144-2150

Wang, J., see Hu, Y., TIM June 2019 1844-1851

Wang, J., Yan, Z., Liu, W., Su, D., Yan, X., and Fan, J., A High-Sensitivity Resonant Tangential E-Probe With Loaded Improved Dipole and Embedded Integrated Balun; TIM Aug. 2019 3042-3044

Wang, J., see Zhang, T., TIM Oct. 2019 3740-3750

Wang, J., see Qu, N., TIM Oct. 2019 3785-3792

Wang, K.I., see Tian, Q., TIM Oct. 2019 4028-4037

Wang, L., see Zhang, Z., TIM Dec. 2019 4896-4905

Wang, L., see Liu, L., TIM Jan. 2019 225-233

Wang, L., Cai, G., Wang, J., Jiang, X., and Zhu, Z., Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis; *TIM Feb.* 2019 450-461

Wang, L., see Hong, K., TIM April 2019 1221-1229

Wang, N., see Liu, M., TIM Oct. 2019 3718-3732

Wang, P., see Sun, J., TIM Dec. 2019 4787-4797

Wang, Q., see Lu, S., TIM March 2019 741-753

Wang, Q., see Lu, S., TIM July 2019 2315-2332

Wang, Q., Gao, C., Zhou, J., Wei, G., Nie, X., and Long, X., Filtering for Drift Data of a Laser Doppler Velocimeter Based on Metabolic Time-Series-Grey Model: TIM July 2019 2552-2559

Wang, Q., see Huang, S., TIM June 2019 2229-2236

Wang, Q., see Chen, L., TIM June 2019 1714-1723

Wang, Q., see Zhuang, S., TIM June 2019 1671-1679

Wang, Q., Jing, J., and Wang, B., Highly Sensitive SPR Biosensor Based on Graphene Oxide and Staphylococcal Protein A Co-Modified TFBG for Human IgG Detection; TIM Sept. 2019 3350-3357

Wang, Q., see Chen, L., TIM Sept. 2019 3054-3065

Wang, Q., Xu, Y., Su, Z., Cao, M., and Yue, D., An Enhanced Time-Reversal Imaging Algorithm-Driven Sparse Linear Array for Progressive and Quantitative Monitoring of Cracks; *TIM Oct.* 2019 3433-3445

Wang, R., see Zhuang, S., TIM June 2019 1671-1679

Wang, S., see Liu, F., TIM Feb. 2019 525-532

Wang, S., see He, Y., TIM April 2019 1035-1044

Wang, S., see Mu, B., TIM May 2019 1575-1581

Wang, S., see Huang, S., TIM June 2019 2229-2236

Wang, S., Xu, Y., Zheng, Y., Zhu, M., Yao, H., and Xiao, Z., Tracking a Golf Ball With High-Speed Stereo Vision System; TIM Aug. 2019 2742-2754

Wang, T., He, Y., Shi, T., Tong, J., and Li, B., Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM; *TIM March* 2019 818-828

Wang, T., see Zhao, Z., TIM April 2019 1089-1100

Wang, W., see Ahwiadi, M., TIM March 2019 923-935

Wang, W., see Qiu, Z., TIM Jan. 2019 27-37

Wang, W., see Kao, I., TIM Feb. 2019 310-324

Wang, W., see Huang, L., TIM June 2019 2144-2150

Wang, X., see Sun, S., TIM Dec. 2019 4640-4652

Wang, X., see Zhang, J., TIM Dec. 2019 4723-4735

Wang, X., see Hwang, J., TIM July 2019 2387-2393

Wang, X., see Zhang, L., TIM Feb. 2019 355-367

Wang, X., see Wang, C., TIM April 2019 1053-1061

Wang, X., see Zhao, Z., TIM April 2019 1089-1100

Wang, X., see Ren, M., TIM April 2019 1148-1156

Wang, X., see Du, C., TIM Nov. 2019 4559-4565

Wang, Y., see Ren, S., TIM March 2019 762-773

Wang, Y., see Yang, A., TIM Dec. 2019 4629-4639

Wang, Y., see Ye, C., TIM July 2019 2594-2601

Wang, Y., see Liu, F., TIM Feb. 2019 525-532

Wang, Y., see Lin, Y., TIM Feb. 2019 474-482

Wang, Y., see Li, J., TIM Feb. 2019 623-631

Wang, Y., see Zhang, X., TIM April 2019 1157-1164

Wang, Y., Li, Q., Zhou, F., Zhou, Y., and Mu, X., A New Method With Hilbert Transform and Slip-SVD-Based Noise-Suppression Algorithm for Noisy Power Quality Monitoring; TIM April 2019 987-1001

Wang, Y., see Zhao, J., TIM June 2019 1961-1966

Wang, Y., Fu, Z., Durand, M., and Jeffery, A., Nonlinearity of the NIST Calculable Capacitor; TIM June 2019 1895-1900

Wang, Y., see Shi, L., TIM Aug. 2019 2996-3003

Wang, Y., see Guan, S., TIM Oct. 2019 4122-4134

Wang, Y., see Zhou, X., TIM Nov. 2019 4253-4267

Wang, Z., see Yu, Y., TIM Jan. 2019 87-94

Wang, Z., see Zhang, L., TIM Feb. 2019 355-367

Wang, Z., see Li, J., TIM Sept. 2019 3278-3286

Wang, Z., and Yu, Y., Thickness and Conductivity Measurement of Multilayered Electricity-Conducting Coating by Pulsed Eddy Current Technique: Experimental Investigation; TIM Sept. 2019 3166-3172

Wang, Z., see Wang, F., TIM Oct. 2019 3494-3502

Wang, Z.J., see Chen, X., TIM Oct. 2019 3600-3615

Ward, R., see Chen, X., TIM Oct. 2019 3600-3615

Waters, D.H., Hoffman, J., and Kumosa, M., Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors; TIM Feb. 2019 595-605

Wath, M.G., see Ballal, M.S., TIM Oct. 2019 4015-4027

Watzman, S.J., see Sola, A., TIM June 2019 1765-1773

Webster, J.G., see Gonzalez-Briceno, G., TIM March 2019 797-806

Weerasinghe, A., see Zhao, Z., TIM Jan. 2019 169-176

Wei, G., see Wang, Q., TIM July 2019 2552-2559

Wei, X., see Yang, R., TIM Aug. 2019 3012-3019

Wei, X., Li, W., Zhang, M., and Li, Q., Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network; TIM Nov. 2019 4481-4492

Wei, Z., Chen, R., and Chen, X., Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy; TIM Jan. 2019 197-205

Wei, Z., see Fu, N., TIM May 2019 1271-1283

Wei, Z., see Huang, M., TIM Sept. 2019 3090-3099

Wen, C., see Xu, X., TIM April 2019 963-971

Wen, H., see Yang, H., TIM Dec. 2019 4689-4693

Weng, C., see Lin, C., TIM Aug. 2019 2830-2848

Wenge, T., see Alam, F., TIM Aug. 2019 2714-2723

Whitney, A.M., Parker, J.M., Kratzer, Z.C.N., Fessler, J.T., and Whitney, J.G., Reducing RF Distance Error by Characterizing Multipath; *TIM Sept.* 2019 3329-3338

Whitney, J.G., see Whitney, A.M., TIM Sept. 2019 3329-3338

Widarta, A., Null Technique for Precision RF Phase Shift Measurements; TIM June 2019 1840-1843

Williams, D.F., see Gu, D., TIM June 2019 2280-2287

Williams, J., see Ireland, J., TIM June 2019 2066-2071

Williams, P.A., Artusio-Glimpse, A.B., Hadler, J.A., King, D.W., Rogers, K.A., Ryger, I., Vo, T., and Lehman, J.H., Radiation-Pressure-Enabled Traceable Laser Sources at CW Powers up to 50 kW; *TIM June 2019 1833-1839* 

Witte, R.S., see Song, X., TIM Dec. 2019 4779-4786

Wong, K., see Cheng, Y., TIM April 2019 952-962

Wright, P.S., Davis, P.N., Johnstone, K., Rietveld, G., and Roscoe, A.J., Field Measurement of Frequency and ROCOF in the Presence of Phase Steps; *TIM June 2019 1688-1695* 

Wu, B., see Laviada, J., TIM April 2019 1112-1119

Wu, B., see Rigosi, A.F., TIM June 2019 1870-1878

Wu, B., see Li, N., TIM Oct. 2019 3548-3562

Wu, C., Magana, M.E., and Cotilla-Sanchez, E., Dynamic Frequency and Amplitude Estimation for Three-Phase Unbalanced Power Systems Using the Unscented Kalman Filter; TIM Sept. 2019 3387-3395

Wu, E.Q., Peng, X.Y., Zhang, C.Z., Lin, J.X., and Sheng, R.S.F., Pilots' Fatigue Status Recognition Using Deep Contractive Autoencoder Network; TIM Oct. 2019 3907-3919

Wu, J., see Zhu, J., TIM May 2019 1373-1381

Wu, J., see Li, G., TIM Oct. 2019 3942-3949

Wu, L., see Yang, Z., TIM Dec. 2019 4906-4912

Wu, M., see Chang, L., TIM Oct. 2019 3751-3765

Wu, Q., see Liu, Z., TIM Oct. 2019 3563-3575

Wu, Q., see Zhangd, Y.-N., TIM Nov. 2019 4566-4574

Wu, S., see Liu, Z., TIM Oct. 2019 3563-3575

Wu, W., see Zhang, Z., TIM Dec. 2019 4896-4905

Wu, Y., see Lan, L., TIM April 2019 1140-1147

Wu, Y., see Jin, Y., TIM April 2019 1026-1034

Wu, Y., see Shi, L., TIM Sept. 2019 3244-3252

 $\mathbf{X}$ 

Xi, S., see Zhang, M., TIM March 2019 722-740

Xia, C., see Wang, F., TIM Oct. 2019 3494-3502

Xia, H., Zuo, J., Liu, S., and Qiao, Y., Indoor Localization on Smartphones Using Built-In Sensors and Map Constraints; *TIM April 2019 1189-1198* 

**Xia, Y.,** see Jin, Y., TIM April 2019 1026-1034

Xiang, Y., see Ma, X., TIM Oct. 2019 3801-3809

Xiao, C., see Zhou, X., TIM Nov. 2019 4253-4267

Xiao, G., see Ren, M., TIM April 2019 1148-1156

Xiao, G., see Rapuano, S., TIM May 2019 1235-1237

Xiao, S., see Deng, H., TIM Oct. 2019 3950-3961

Xiao, Z., Tan, C., and Dong, F., 3-D Hemorrhage Imaging by Cambered Magnetic Induction Tomography; TIM July 2019 2460-2468

Xiao, Z., see Wang, S., TIM Aug. 2019 2742-2754

**Xibilia, M.G.,** see Ando, B., TIM May 2019 1637-1646

Xie, J., see Deng, H., TIM Oct. 2019 3950-3961

Xie, S., see Zhao, Z., TIM Sept. 2019 3200-3210

Xie, S., Yang, D., Jiang, K., and Zhong, Y., Pixels and 3-D Points Alignment Method for the Fusion of Camera and LiDAR Data; TIM Oct. 2019 3661-3676

Xie, S., see Sui, T., TIM Oct. 2019 3647-3660

Xie, W., see Mu, Y., TIM Oct. 2019 3677-3685

Xie, W., Gaydecki, P., and Caress, A., An Inhaler Tracking System Based on Acoustic Analysis: Hardware and Software; *TIM Nov. 2019 4472-4480* 

Xie, Y., see Pan, D., TIM Oct. 2019 3576-3588

Xie, Y., see Sui, T., TIM Oct. 2019 3647-3660

Xie, Z., see He, Q., TIM Oct. 2019 3456-3467

Xing, G., see Chen, S., TIM Aug. 2019 2755-2767

Xingyu, X., and Abou-Khousa, M.A., Wideband Substrate-Integrated Cavity-Backed Elliptical Slot for Microwave Synthetic Aperture Imaging; TIM July 2019 2665-2667

Xiong, T., see Tao, X., TIM Nov. 2019 4285-4299

Xiong, W., see Ouyang, K., TIM May 2019 1238-1251

Xu, D., see Sun, S., TIM Dec. 2019 4640-4652

Xu, D., Cantin, E., Frank, F., Quintin, N., Meynadier, F., Tuckey, P., Amy-Klein, A., Lopez, O., and Pottie, P., Two-Branch Fiber Link for International Clock Networks; TIM June 2019 2195-2200

Xu, H., Liang, W., and Gao, Q., A Self-Gap-Correction Method for Accurate Permittivity Measurement Using the Hybrid Optimization Algorithm; TIM June 2019 1781-1787

Xu, J., see Li, Z., TIM June 2019 2208-2214

Xu, J., see Zhao, Z., TIM Sept. 2019 3200-3210

Xu, J., see Sui, T., TIM Oct. 2019 3647-3660

Xu, K., see Gu, Z., TIM July 2019 2659-2661

Xu, K., see Li, N., TIM Oct. 2019 3548-3562

Xu, L., see Zhao, J., TIM Feb. 2019 483-492

Xu, L., Rabotti, C., Zhang, Y., Ouzounov, S., Harpe, P.J.A., and Mischi, M., Motion-Artifact Reduction in Capacitive Heart-Rate Measurements by Adaptive Filtering; TIM Oct. 2019 4085-4093

Xu, S., see Hong, K., TIM April 2019 1221-1229

Xu, X., Li, Z., Li, G., Li, J., and Wen, C., An Acoustic Resonance-Based Liquid Level Detector With Error Compensation; TIM April 2019 963-971

Xu, X., see Zhou, K., TIM June 2019 1990-1995

Xu, X., see Zhang, T., TIM Oct. 2019 3740-3750

Xu, Y., see Li, Z., TIM March 2019 704-712

Xu, Y., see Wang, S., TIM Aug. 2019 2742-2754

Xu, Y., see Wang, Q., TIM Oct. 2019 3433-3445

Y

Ya'akobovitz, A., see Cohen, Y., TIM Oct. 2019 3766-3775

Yamada, T., Amagai, Y., and Kon, S., A New Phase Difference Measurement System With Differential AC/Single-Ended DC Switching for One TVC; TIM June 2019 2021-2026

Yan, C., see Zhai, L., TIM Sept. 2019 3232-3243

Yan, F., see Qiu, Z., TIM Jan. 2019 27-37

Yan, R., see Yang, Z., TIM Dec. 2019 4906-4912

Yan, R., see Lu, S., TIM July 2019 2315-2332

Yan, W., Zhao, W., and Li, Y., Effect of Step Response Measurement Arrangement on the Correction of Ultrahigh-Voltage Lightning Impulse Dividers; TIM June 2019 1666-1670

Yan, X., see Wang, J., TIM March 2019 882-894

Yan, X., see Wang, J., TIM Aug. 2019 3042-3044

Yan, Y., see Reda, K., TIM May 2019 1467-1476

Yan, Y., see Wang, F., TIM Oct. 2019 3494-3502

Yan, Z., see Wang, J., TIM March 2019 882-894

Yan, Z., see Wang, J., TIM Aug. 2019 3042-3044

Yang, A., Wang, Y., Zi, Y., and Chow, T.W.S., An Enhanced Trace Ratio Linear Discriminant Analysis for Fault Diagnosis: An Illustrated Example Using HDD Data; TIM Dec. 2019 4629-4639

Yang, B., Yang, Z., Sun, R., Zhai, Z., and Chen, X., Fast Nonlinear Chirplet Dictionary-Based Sparse Decomposition for Rotating Machinery Fault Diagnosis Under Nonstationary Conditions; TIM Dec. 2019 4736-4745

Yang, C., see Pan, D., TIM Oct. 2019 3576-3588

Yang, D., see Xie, S., TIM Oct. 2019 3661-3676

Yang, H., and Wen, H., TDR Prediction Method for PIM Distortion in Loose Contact Coaxial Connectors; TIM Dec. 2019 4689-4693

Yang, J., see Choi, U., TIM Dec. 2019 4615-4617

Yang, J., see Yu, Z., TIM May 2019 1543-1553

Yang, J., see Zhao, Z., TIM Sept. 2019 3200-3210

Yang, K., see Yang, R., TIM Sept. 2019 3119-3127

Yang, L., see Zhang, F., TIM Sept. 2019 3184-3192

Yang, L., see Huang, X., TIM Oct. 2019 4003-4014

Yang, R., Wei, X., Shu, Y., and Yang, Y., A High-Frequency and High Spatial Resolution Probe Design for EMI Prediction; TIM Aug. 2019 3012-3019

Yang, R., Zhang, D., Li, Z., Yang, K., Mo, S., and Li, L., Mechanical Fault Diagnostics of Power Transformer On-Load Tap Changers Using Dynamic Time Warping; TIM Sept. 2019 3119-3127

Yang, S., see Chen, X., TIM Dec. 2019 4612-4614

Yang, Y., Yao, H., Dong, J., Qu, X., and Chen, Z., Amplitude Estimation and Source Separation for Harmonics Within Two Mixtures Based on a Min-Rank Criterion; *TIM Dec.* 2019 4618-4628

Yang, Y., see Que, Y., TIM Dec. 2019 4663-4674

Yang, Y., see Gao, Z., TIM July 2019 2491-2497

Yang, Y., see Rigosi, A.F., TIM June 2019 1870-1878

Yang, Y., see Huang, L., TIM June 2019 2144-2150

Yang, Y., see Maheshwari, M., TIM Aug. 2019 2943-2953

Yang, Y., see Chen, S., TIM Aug. 2019 2755-2767

Yang, Y., see Yang, R., TIM Aug. 2019 3012-3019

Yang, Y., see Liu, M., TIM Oct. 2019 3718-3732

Yang, Y.J., see Tsai, H., TIM May 2019 1561-1574

Yang, Z., Li, G., Yan, R., Sun, Y., Wu, L., and Zhang, A., 3-D Computational Ghost Imaging With Extended Depth of Field for Measurement; *TIM Dec.* 2019 4906-4912

Yang, Z., see Yang, B., TIM Dec. 2019 4736-4745

Yao, H., see Yang, Y., TIM Dec. 2019 4618-4628

Yao, H., see Wang, S., TIM Aug. 2019 2742-2754

Yaremenko, V., Azimi-Sadjadi, M.R., and Zacher, J., Unattended Acoustic Sensor Systems For Source Detection, Classification, and Tracking; TIM Feb. 2019 344-354

Ye, C., Wang, Y., and Tao, Y., High-Density Large-Scale TMR Sensor Array for Magnetic Field Imaging; TIM July 2019 2594-2601

Ye, D., see Gu, Z., TIM July 2019 2659-2661

Yensen, T., see Eldemerdash, Y.A., TIM Feb. 2019 642-644

Yeom, K., see Lee, D., TIM July 2019 2579-2593

Yi, J., Zhou, M., Li, Z., and Li, J., A Novel Technique for Fundamental and Harmonic Parameter Estimation Using Nonergodic S-Transform; *TIM Oct.* 2019 3503-3513

Yi, J., see Zhao, Q., TIM Oct. 2019 3589-3599

Yi, J., see Tao, X., TIM Nov. 2019 4285-4299

Yi, X., Zhang, J., Tian, B., and Jiang, C., Design of Magnetic Resonance Sounding Antenna and Matching Circuit for the Risk Detection of Tunnel Water-Induced Disasters; TIM Dec. 2019 4945-4953 Yin, M., Liu, X., Liu, Y., and Chen, X., Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain; *TIM Jan. 2019 49-64* 

**Yin, Y.,** see Sun, S., TIM Dec. 2019 4640-4652

You, C., see Zhang, J., TIM Dec. 2019 4723-4735

You, Q., see Li, Z., TIM June 2019 2208-2214

Young, P.R., see Azeez, Y.F., TIM Jan. 2019 294-296

Yu, B., Su, J., Li, R., Zhao, L., Zeng, B., Cheng, J., and Liu, J., An Improved Match Method of Capacitive Divider for Measurement of Nanosecond-Range HV Pulses; TIM Oct. 2019 4146-4151

Yu, C., see Gu, F., TIM Aug. 2019 2705-2713

Yu, H., Li, Q., Tan, Y., Gan, J., Wang, J., Geng, Y., and Jia, L., A Coarse-to-Fine Model for Rail Surface Defect Detection; *TIM March 2019 656-666* 

Yu, H., see Tsai, H., TIM May 2019 1561-1574

Yu, H., see Zhang, J., TIM Oct. 2019 4112-4121

Yu, L., see Kang, G., TIM Aug. 2019 2679-2690

Yu, M., see Chen, X., TIM Dec. 2019 4612-4614

Yu, T., see Du, C., TIM Nov. 2019 4559-4565

Yu, Y., Wang, Z., and Lu, C., A Joint Filter Approach for Reliable Power System State Estimation; *TIM Jan. 2019 87-94* 

Yu, Y., see Wang, Z., TIM Sept. 2019 3166-3172

Yu, Z., Zhang, J., Yuan, L., Yang, J., Yuan, Y., Zhang, H., Tian, S., Lu, X., Zhang, X., Jiang, F., and Liu, Z., Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review; *TIM May* 2019 1543-1553

Yuan, H., see Li, Z., TIM April 2019 1132-1139

Yuan, J., see Gao, H., TIM Nov. 2019 4427-4442

Yuan, L., see Yu, Z., TIM May 2019 1543-1553

Yuan, S., Wang, H., Hesari, S.H., Shamsir, S., and Islam, S.K., A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application; *TIM Aug.* 2019 2871-2879

Yuan, Y., see Yu, Z., TIM May 2019 1543-1553

Yue, C., Ding, H., and Liu, X., Magnetic-Field Measurement Based on Multicore Fiber Taper and Magnetic Fluid; TIM March 2019 688-692

Yue, D., see Wang, Q., TIM Oct. 2019 3433-3445

Yue, G., Hou, C., Zhou, T., and Zhang, X., Effective and Efficient Blind Quality Evaluator for Contrast Distorted Images; TIM Aug. 2019 2733-2741

Yue, G., Gu, K., and Qiao, J., Effective and Efficient Photo-Based PM2.5 Concentration Estimation; TIM Oct. 2019 3962-3971

 $\mathbf{Z}$ 

Zacher, J., see Yaremenko, V., TIM Feb. 2019 344-354

Zama, M., see Abe, T., TIM June 2019 2078-2083

Zanoni, A., see Lavatelli, A., TIM Oct. 2019 4065-4074

Zanoni, M., see Faifer, M., TIM May 2019 1611-1618

**Zanoni, M.,** see Faifer, M., TIM Aug. 2019 2800-2807

Zanoni, M., see Cristaldi, L., TIM Aug. 2019 2792-2799

**Zanoni, M.,** see Faifer, M., TIM Oct. 2019 3823-3830 **Zappa, E.,** see Lavatelli, A., TIM Oct. 2019 4065-4074

**Zappa, E.,** see Lavatelli, A., TIM Nov. 2019 4376-4386

**Zarebski, J.,** see Gorecki, K., TIM Dec. 2019 4864-4875

Zdzieblik, D., see Karacocuk, G., TIM Nov. 2019 4268-4275

Zeeshan, Z., Zuccarelli, C.E., Ospina Acero, D., Marashdeh, Q.M., and Teixeira, F.L., Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes; TIM Feb. 2019 462-473

Zeng, B., see Yu, B., TIM Oct. 2019 4146-4151

Zeng, L., see Jin, Y., TIM April 2019 1026-1034

Zeng, X., Fhager, A., Persson, M., and Zirath, H., Performance Evaluation of a Time-Domain Microwave System for Medical Diagnostics; *TIM Aug.* 2019 2880-2889

Zeng, Z., see Hu, Y., TIM June 2019 1844-1851

Zeni, L., see Cennamo, N., TIM May 2019 1582-1589

Zeqiri, B., see Baker, C., TIM Oct. 2019 3920-3931

Zerdali, E., and Menguc, E.C., Novel Complex-Valued Stator Current-Based MRAS Estimators With Different Adaptation Mechanisms; TIM Oct. 2019 3793-3795

Zerhouni, N., see Atamuradov, V., TIM Aug. 2019 2691-2704

Zhai, C., see Zhao, J., TIM June 2019 1961-1966

Zhai, L., Zhang, H., Yan, C., and Jin, N., Measurement of Oil-Water Interface Characteristics in Horizontal Pipe Using a Conductance Parallel-Wire Array Probe; TIM Sept. 2019 3232-3243

Zhai, Z., see Yang, B., TIM Dec. 2019 4736-4745

Zhang, A., see Yang, Z., TIM Dec. 2019 4906-4912

Zhang, B., see Lu, S., TIM March 2019 741-753

**Zhang, C.Z.,** see Wu, E.Q., TIM Oct. 2019 3907-3919

**Zhang, D.,** see Jiang, Z., TIM Dec. 2019 4807-4816

Zhang, D., see Kang, G., TIM Aug. 2019 2679-2690

**Zhang, D.,** see Bai, X., TIM Sept. 2019 3287-3298

Zhang, D., see Yang, R., TIM Sept. 2019 3119-3127

Zhang, F., Yang, L., and Fu, Y., Design of a Novel Elastic Torque Sensor for Hand Injuries Rehabilitation Based on Bowden Cable; TIM Sept. 2019 3184-

**Zhang, G.,** see Shen, Y., TIM Oct. 2019 4051-4064

Zhang, G., see Huang, X., TIM Oct. 2019 4003-4014

Zhang, G., see Pan, X., TIM Nov. 2019 4575-4589

**Zhang, H.,** see Yu, Z., TIM May 2019 1543-1553

Zhang, H., see Zhai, L., TIM Sept. 2019 3232-3243

Zhang, H., see Deng, H., TIM Oct. 2019 3950-3961

Zhang, H., see Zhou, X., TIM Nov. 2019 4253-4267

**Zhang, J.,** see Yi, X., TIM Dec. 2019 4945-4953

Zhang, J., Tian, Y., Ren, Z., Wang, X., You, C., and Jia, Z., Thermal Force Uncertainty of Piezoelectric Dynamometer; TIM Dec. 2019 4723-4735

Zhang, J., Liu, W., and Zhang, Z., Study on Characteristics Location of Pantograph-Catenary Contact Force Signal Based on Wavelet Transform; TIM Feb. 2019 402-411

Zhang, J., see Cheng, Y., TIM April 2019 952-962

Zhang, J., see Mu, B., TIM May 2019 1575-1581

**Zhang, J.,** see Yu, Z., TIM May 2019 1543-1553

Zhang, J., see Shi, Z., TIM June 2019 2053-2059

Zhang, J., Yu, H., Deng, H., Chai, Z., Ma, M., and Zhong, X., A Robust and Rapid Camera Calibration Method by One Captured Image; TIM Oct. 2019 4112-4121

Zhang, L., Chen, M., Wang, X., and Wang, Z., TOA Estimation of Chirp Signal in Dense Multipath Environment for Low-Cost Acoustic Ranging; TIM Feb. 2019 355-367

**Zhang, L.,** see Kuramoto, N., TIM June 2019 1913-1920

Zhang, L., see Han, X., TIM Aug. 2019 2890-2897

Zhang, M., Zi, Y., Niu, L., Xi, S., and Li, Y., Intelligent Diagnosis of V-Type Marine Diesel Engines Based on Multifeatures Extracted From Instantaneous Crankshaft Speed; TIM March 2019 722-740

Zhang, M., see Wei, X., TIM Nov. 2019 4481-4492

Zhang, R., see Zhang, S., TIM Dec. 2019 4817-4824

Zhang, R., Cheng, Y., Li, Y., Zhou, D., and Cheng, S., Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway; TIM April 2019 1120-1131

Zhang, R., see Karacocuk, G., TIM Nov. 2019 4268-4275

Zhang, S., Jia, G., Zhang, R., Lin, J., Chen, Y., Jin, X., and Ning, G., Measuring the Local and Global Variabilities in Body Sway by Nonlinear Poincaré Technology; TIM Dec. 2019 4817-4824

**Zhang, S.,** Li, X., Jeong, H., and Cho, S., Investigation of Material Nonlinearity Measurements Using the Third-Harmonic Generation; TIM Oct. 2019 3635-

Zhang, T., Zhu, Y., Xu, X., Wang, J., and Li, Y., In-Motion Coarse Alignment Based on the Vector Observation for SINS; TIM Oct. 2019 3740-3750

Zhang, W., see Sola, A., TIM June 2019 1765-1773

Zhang, W., see Hu, Y., TIM June 2019 1844-1851

Zhang, W., see Zhong, J., TIM Aug. 2019 2849-2860

Zhang, W., see Chen, S., TIM Aug. 2019 2755-2767

Zhang, X., Kim, H., and Kim, M.J., Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient; TIM March 2019 680-687

Zhang, X., see Li, H., TIM March 2019 782-790

Zhang, X., see Huang, K., TIM Dec. 2019 4756-4764

**Zhang, X.,** see Li, J., TIM Feb. 2019 623-631

Zhang, X., Qin, J., Wang, Y., and Chen, C., A Fast Identification on the Spin-Exchange Relaxation-Free Regime of Atomic Magnetometer Exploiting Measurement on Gyromagnetic Ratio; TIM April 2019 1157-1164

**Zhang, X.,** see Yu, Z., TIM May 2019 1543-1553

Zhang, X., see Yue, G., TIM Aug. 2019 2733-2741

Zhang, X., see Zhao, Z., TIM Sept. 2019 3200-3210

Zhang, X., see Mu, Y., TIM Oct. 2019 3677-3685

Zhang, X., see Gao, H., TIM Nov. 2019 4427-4442

Zhang, Y., see Jin, Y., TIM April 2019 1026-1034

Zhang, Y., see Li, J., TIM Sept. 2019 3278-3286

Zhang, Y., see Huang, X., TIM Oct. 2019 4003-4014

**Zhang, Y.,** see Xu, L., TIM Oct. 2019 4085-4093

Zhang, Y., see Liu, M., TIM Oct. 2019 3718-3732

Zhang, Z., Wang, L., Mei, H., and Wu, W., Quantitative Detection of Interfacial Air Gap in Insulation Equipment Based on Terahertz Wave Contrast Method; TIM Dec. 2019 4896-4905

Zhang, Z., see Zhang, J., TIM Feb. 2019 402-411

Zhang, Z., see Qian, L., TIM June 2019 1973-1981

Zhang, Z., see Bai, Y., TIM June 2019 2237-2245

Zhang, Z., see Li, Z., TIM June 2019 2208-2214

Zhang, Z., see Bai, X., TIM Sept. 2019 3287-3298

Zhang, X., see Molderez, T.R., TIM Dec. 2019 4694-4702

Zhangd, Y.-N., Siyu, E., Tao, B., Wu, Q., and Han, B., Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature; TIM Nov. 2019 4566-4574

Zhao, C., see Liu, L., TIM Jan. 2019 225-233

Zhao, D., Zhou, F., Jiang, R., Liu, X., and Chen, Y., Design of Low-Complexity 3-D Underwater Imaging System With Sparse Planar Arrays; TIM Oct. 2019 3418-3432

Zhao, H., see Zhou, X., TIM Nov. 2019 4253-4267

Zhao, J., Xu, L., and Cao, Z., Direct Image Reconstruction for Electrical Capacitance Tomography Using Shortcut D-Bar Method; TIM Feb. 2019 483-492

Zhao, J., Lu, Y., Zhai, C., He, Q., Huang, X., and Wang, Y., Method for the Absolute Calibration of Direct-Current Current Transducers; TIM June 2019 1961-1966

Zhao, J., see Huang, L., TIM June 2019 2144-2150

Zhao, J., see Zhou, K., TIM June 2019 1990-1995

Zhao, J., Wang, H., Song, J., and Dong, F., Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation; TIM Sept. 2019 3268-3277

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INS/CNS Integrated Navigation Based on Corrected Infrared Earth Measurement. Gou, B., +, TIM Sept. 2019 3358-3366

### Audio signal processing

Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. *Mayer, P., +, TIM July 2019 2346-2355* 

#### **Automatic optical inspection**

A CNN-Based Defect Inspection Method for Catenary Split Pins in High-Speed Railway. *Zhong*, *J.*, +, *TIM Aug. 2019 2849-2860* 

A Novel Stereo Vision Measurement System Using Both Line Scan Camera and Frame Camera. *Liu*, Z., +, *TIM Oct. 2019 3563-3575* 

Generalized Completed Local Binary Patterns for Time-Efficient Steel Surface Defect Classification. Luo, Q., +, TIM March 2019 667-679

Surface Defects Detection Based on Adaptive Multiscale Image Collection and Convolutional Neural Networks. Sun, J., +, TIM Dec. 2019 4787-4797

### **Automotive electronics**

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S.*, +, *TIM July 2019 2335-2345* 

#### Autonomous aerial vehicles

A SAR-Based Measurement Method for Passive-Tag Positioning With a Flying UHF-RFID Reader. *Buffi*, A., +, *TIM March 2019 845-853* 

ADMOST: UAV Flight Data Anomaly Detection and Mitigation via Online Subspace Tracking. *He, Y., +, TIM April 2019 1035-1044* 

Robust Visual Detection and Tracking Strategies for Autonomous Aerial Refueling of UAVs. Sun, S., +, TIM Dec. 2019 4640-4652

#### Autoregressive processes

Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372

В

#### **Balances**

A Parasitic Displacement Measurement System for Suspended Coil in Joule Balance. *Bai*, *Y*., +, *TIM June 2019 2237-2245* 

A Simple Electrostatic Balance for the Milligram Range. *Pisani, M.*, +, *TIM June* 2019 2223-2228

Optimization Procedure for the Determination of Faraday's Voltage in UME Kibble Balance (July 2018). *Ahmedov, H.*, +, *TIM June 2019 2172-2175* 

The Design and Development of a Tabletop Kibble Balance at NIST. *Chao*, L., +, *TIM June 2019 2176-2182* 

The Improvements of the NIM-2 Joule Balance. Li, Z., +, TIM June 2019 2208-2214

Torsional Balance for Simultaneous Evaluation of Thrust Force and Flow Velocity of Electrostatically Induced Ionic Wind. *Lee, J.R.*, +, *TIM Nov.* 2019 4518-4525

### Ball bearings

Early Fault Diagnosis and Classification of Ball Bearing Using Enhanced Kurtogram and Gaussian Mixture Model. *Hong, Y., +, TIM Dec. 2019* 4746-4755

### Baluns

A High-Sensitivity Resonant Tangential E-Probe With Loaded Improved Dipole and Embedded Integrated Balun. Wang, J., +, TIM Aug. 2019 3042-3044

### **Band-pass filters**

Dynamic Harmonic Synchrophasor Estimator Based on Sinc Interpolation Functions. Chen, L., +, TIM Sept. 2019 3054-3065

Optical Transition-Edge Sensors: Dependence of System Detection Efficiency on Wavelength. *Hattori, K., +, TIM June 2019 2253-2259* 

### Band-stop filters

Design and Implementation of a High-Sensitivity and Compact-Size IFM Receiver. *Rahimpour, H.*, +, *TIM July 2019 2602-2609* 

### **Barometers**

Evaluation of Experimental GNSS and 10-DOF MEMS IMU Measurements for Train Positioning. *Otegui*, *J.*, +, *TIM Jan. 2019 269-279* 

Height Measurement in Seamless Indoor/Outdoor Infrastructure-Free Navigation. *Rantanen, J.*, +, *TIM April 2019 1199-1209* 

### **Battery storage plants**

A Testing Framework for the Monitoring and Performance Analysis of Distributed Energy Systems. Rinaldi, S., +, TIM Oct. 2019 3831-3840

#### **Bayes methods**

A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings. Hong, K., +, TIM April 2019 1221-1229

Characterization of  $S_1$  and  $S_2$  Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra, M.*, +, *TIM Sept. 2019 3211-3220* Signal Processing for Capacitive Ice Sensing: Electrode Topology and Algo-

### rithm Design. Neumayer, M., +, TIM May 2019 1458-1466

### Behavioral sciences computing

Trip-Based Measures of Naturalistic Driving: Considerations and Connections With Cognitive Status in Older Adult Drivers. Howcroft, J., +, TIM July 2019 2451-2459

#### Belief networks

Characterization of S<sub>1</sub> and S<sub>2</sub> Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, *M.*, +, *TIM Sept. 2019 3211-3220* 

#### **Bending**

Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors. *Waters, D.H.*, +, *TIM Feb. 2019 595-605* 

### Beverage industry

Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou, X.*, +, *TIM Nov. 2019 4253-4267* 

#### **Beverages**

Tea Quality Prediction by Sparse Modeling of Electronic Tongue Signals. Saha, P., +, TIM Sept. 2019 3046-3053

#### **Big Data**

Trip-Based Measures of Naturalistic Driving: Considerations and Connections With Cognitive Status in Older Adult Drivers. *Howcroft, J.*, +, *TIM July 2019 2451-2459* 

### **Binary codes**

Design and Implementation of a High-Sensitivity and Compact-Size IFM Receiver. Rahimpour, H., +, TIM July 2019 2602-2609

#### **Bio-optics**

A New Device Based on Interferometric Optical Detection Method for Label-Free Screening of C-Reactive Protein. *Maigler, M.V.*, +, *TIM Sept.* 2019 3193-3199

### **Biochemistry**

3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications. S. B., P., +, TIM July 2019 2648-2655

### Bioelectric phenomena

A Current-Driven Six-Channel Potentiostat for Rapid Performance Characterization of Microbial Electrolysis Cells. *Molderez*, *T.R.*, +, *TIM Dec.* 2019 4694-4702

Modeling and Validation of Fixture-Induced Error for Impedance Measurements. Nelson, B.W., +, TIM Jan. 2019 129-137

On the Suitability of Low-Cost Compact Instrumentation for Blood Impedance Measurements. Addabbo, T., +, TIM July 2019 2412-2424

### **Bioelectric potentials**

Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli, A.*, +, *TIM July 2019 2433-2441* 

### Biological effects of microwaves

Measurement Methodology for Determining the Optimal Frequency Domain Configuration to Accurately Record WiFi Exposure Levels. *Fernandez, M.*, +, *TIM Feb. 2019 547-557* 

### **Biological techniques**

Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient. *Zhang, X.*, +, *TIM March 2019* 680-687

Towards Accurate and Wideband *In Vivo* Measurement of Skin Dielectric Properties. *Gao*, Y., +, *TIM Feb. 2019 512-524* 

### **Biological tissues**

3-D Ultrasound Palmprint Recognition System Based on Principal Lines Extracted at Several Under Skin Depths. *Iula*, A., +, *TIM Dec. 2019 4653-4662* 

Accurate Technique for Electrical Permittivity Measurement of Biological Tissue Specimens at Low Frequencies. *Hesabgar, S.M.*, +, *TIM July 2019* 2479-2490

### **Biology computing**

Bee Swarm Detection Based on Comparison of Estimated Distributions Samples of Sound. Krzywoszyja, G., +, TIM Oct. 2019 3776-3784

#### **Biomechanics**

Finger Displacement Sensing: FEM Simulation and Model Prediction of a Three-Layer Electrode Design. *Hu*, *N*., +, *TIM May 2019 1432-1440* 

Gait Nonlinear Patterns Related to Parkinson's Disease and Age. *Lahmiri*, S., *TIM July 2019 2545-2551* 

Measuring the Maximum Power of an *ex vivo* Engineered Muscle Tissue With Isovelocity Shortening Technique. *Pisu*, S., +, *TIM July 2019 2404-2411* 

#### **Biomedical electrodes**

A Capacitive-Coupled Noncontact Probe for the Measurement of Conductivity of Liquids. *Tejaswini*, K.K., +, TIM May 2019 1602-1610

Detection of Spikes With Defined Parameters in the ECoG Signal. *Kolodziej, M.*, +, *TIM April 2019 1045-1052* 

Motion-Artifact Reduction in Capacitive Heart-Rate Measurements by Adaptive Filtering. Xu, L., +, TIM Oct. 2019 4085-4093

On the Suitability of Low-Cost Compact Instrumentation for Blood Impedance Measurements. *Addabbo*, *T.*, +, *TIM July 2019 2412-2424* 

The ACE1 Electrical Impedance Tomography System for Thoracic Imaging. Mellenthin, M.M., +, TIM Sept. 2019 3137-3150

#### **Biomedical electronics**

A DC-Coupled High Dynamic Range Biomedical Radar Sensor With Fast-Settling Analog DC Offset Cancelation. *Tang, D.*, +, *TIM May 2019* 1441-1450

A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan*, S., +, TIM Aug. 2019 2871-2879

An Advanced 100-Channel Readout System for Nuclear Imaging. *Zhao, Z.,* +, *TIM Sept. 2019 3200-3210* 

The ACE1 Electrical Impedance Tomography System for Thoracic Imaging. Mellenthin, M.M., +, TIM Sept. 2019 3137-3150

#### Biomedical equipment

Design and Evaluation of a USB Isolator for Medical Instrumentation. *Gonzalez-Briceno*, G., +, TIM March 2019 797-806

PESA: Probabilistic Efficient Storage Algorithm for Time-Domain Spectrum Measurements. Al Kalaa, M.O., +, TIM Feb. 2019 325-333

### **Biomedical imaging**

A Robust Inclusion Boundary Reconstructor for Electrical Impedance Tomography With Geometric Constraints. *Ren, S.*, +, *TIM March 2019* 762-773

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. Horst, M.J., +, TIM Nov. 2019 4400-4411

### Biomedical measurement

A Capacitive-Coupled Noncontact Probe for the Measurement of Conductivity of Liquids. *Tejaswini, K.K.*, +, *TIM May 2019 1602-1610* 

A DC-Coupled High Dynamic Range Biomedical Radar Sensor With Fast-Settling Analog DC Offset Cancelation. *Tang, D.*, +, *TIM May 2019* 1441-1450

A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan, S.*, +, *TIM Aug. 2019 2871-2879* 

Accurate Technique for Electrical Permittivity Measurement of Biological Tissue Specimens at Low Frequencies. *Hesabgar, S.M.*, +, *TIM July 2019* 2479-2490

Calibration of Vision-Based Measurement of Pain Intensity With Multiple Expert Observers. Casti, P., +, TIM July 2019 2442-2450

Design of a Novel Elastic Torque Sensor for Hand Injuries Rehabilitation Based on Bowden Cable. *Zhang, F.*, +, *TIM Sept. 2019 3184-3192* 

Measuring the Maximum Power of an *ex vivo* Engineered Muscle Tissue With Isovelocity Shortening Technique. *Pisu*, S., +, *TIM July 2019 2404-2411* 

### **Biomedical measurements**

Guest Editorial The 2018 IEEE International Symposium on Medical Measurements and Applications Special Section. *Scalise, L.*, +, *TIM July 2019* 2394-2395

### Biomedical monitoring

Guest Editorial The 2018 IEEE International Symposium on Medical Measurements and Applications Special Section. Scalise, L., +, TIM July 2019 2394-2395

Inertial Sensor-Based Respiration Analysis. Karacocuk, G., +, TIM Nov. 2019 4268-4275

#### **Biomedical MRI**

3-D Hemorrhage Imaging by Cambered Magnetic Induction Tomography. *Xiao*, Z., +, *TIM July 2019 2460-2468* 

k-Space-Based Enhancement of Pulmonary Hyperpolarized <sup>129</sup>Xe Ventilation Images. Deng, H., +, TIM Oct. 2019 3950-3961

#### Biomedical transducers

A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan, S., +, TIM Aug. 2019 2871-2879* 

### Biomedical ultrasonics

An Extended Kalman Filter for Fetal Heart Location Estimation During Doppler-Based Heart Rate Monitoring. *Hamelmann, P., +, TIM Sept. 2019* 3221-3231

Pulse Pileup Correction of Signals From a Pyroelectric Sensor for Phase-Insensitive Ultrasound Computed Tomography. Baker, C., +, TIM Oct. 2019 3920-3931

### Biometrics (access control)

Person Recognition Using 3-D Palmprint Data Based on Full-Field Sinusoidal Fringe Projection. Bai, X., +, TIM Sept. 2019 3287-3298

#### Biosensor

Highly Dispersion Tailored Property of Novel Class of Multimode Surface Plasmon Resonance Biosensor Assisted by Teflon and Metamaterial Layers. *Raghuwanshi*, S.K., +, TIM Aug. 2019 2954-2963

Highly Sensitive SPR Biosensor Based on Graphene Oxide and Staphylococcal Protein A Co-Modified TFBG for Human IgG Detection. Wang, Q., +, TIM Sept. 2019 3350-3357

### Biotechnology

A Novel Approach for Microbial Corrosion Assessment. *Iannucci, L.*, +, *TIM May 2019 1424-1431* 

### Birefringence

Characterization of the Vacuum Birefringence Polarimeter at BMV: Dynamical Cavity Mirror Birefringence. *Hartman, M.T.*, +, *TIM June 2019 2268-2273* 

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

### Blades

Impulse Exciter of Rotating Blades With an Increased Excitation Force. Prochazka, P., TIM Jan. 2019 300-302

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S.*, +, *TIM July 2019 2335-2345* 

### **Blast furnaces**

Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131

Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. Pan, D., +, TIM Oct. 2019 3576-3588

### Blind source separation

Amplitude Estimation and Source Separation for Harmonics Within Two Mixtures Based on a Min-Rank Criterion. *Yang, Y., +, TIM Dec. 2019* 4618-4628

### Blood

On the Suitability of Low-Cost Compact Instrumentation for Blood Impedance Measurements. Addabbo, T., +, TIM July 2019 2412-2424

### **Blood pressure measurement**

A Measurement System to Estimate the Pleural Pressure From the CVP for Respiratory System Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2469-2478* **Blood vessels** 

## A Measurement System to Estimate the Pleural Pressure From the CVP for Respiratory System Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2469-2478*

Bluetooth

A Movement-Tremors Recorder for Patients of Neurodegenerative Diseases

### A Movement-Tremors Recorder for Patients of Neurodegenerative Diseases. Gugliandolo, G., +, TIM May 2019 1451-1457

#### Body sensor networks

Wearable Inverse Light-Emitting Diode Sensor for Measuring Light Intensity at Specific Wavelengths in Light Therapy. *Tsai*, H., +, *TIM May 2019* 1561-1574

#### **Bottles**

Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou*, *X.*, +, *TIM Nov. 2019 4253-4267* 

#### **Boundary integral equations**

Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy. Wei, Z., +, TIM Jan. 2019 197-205

### **Bragg gratings**

A Rotation Independent In-Place Inclinometer/Tilt Sensor Based on Fiber Bragg Grating. *Maheshwari*, M., +, TIM Aug. 2019 2943-2953

Fiber Bragg Grating-Based Oil-Film Pressure Measurement in Journal Bearings. Mu, B., +, TIM May 2019 1575-1581

Highly Sensitive SPR Biosensor Based on Graphene Oxide and Staphylococcal Protein A Co-Modified TFBG for Human IgG Detection. *Wang, Q.*, +, *TIM Sept. 2019 3350-3357* 

Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors. Waters, D.H., +, TIM Feb. 2019 595-605

Pseudohigh-Resolution Spectral Interrogation Scheme for Small Signals From FBG Sensors. *Lim, K., +, TIM Aug. 2019 2964-2970* 

#### Brain

3-D Hemorrhage Imaging by Cambered Magnetic Induction Tomography. *Xiao*, *Z.*, +, *TIM July 2019 2460-2468* 

A Movement-Tremors Recorder for Patients of Neurodegenerative Diseases. Gugliandolo, G., +, TIM May 2019 1451-1457

#### **Brain-computer interfaces**

A Single-Channel SSVEP-Based Instrument With Off-the-Shelf Components for Trainingless Brain-Computer Interfaces. *Angrisani, L.*, +, *TIM Oct.* 2019 3616-3625

### **Breast cancer**

Noninvasive Acoustoelectric Imaging of Resistivity Distribution Based on Lead Field Theory. *Song, X.*, +, *TIM Dec. 2019 4779-4786* 

### Bridge circuits

A Synchronized Current-Comparator Bridge for the Calibration of Analog Merging Units. *Djokic, B., +, TIM June 2019 1955-1960* 

Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges. *Kim, D.B., +, TIM June 2019 1941-1947* 

### **Bridge instruments**

Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges. Kim, D.B., +, TIM June 2019 1941-1947

### Bubbles

A New Contactless Bubble/Slug Velocity Measurement Method of Gas—Liquid Two-Phase Flow in Small Channels. *Huang, J.*, +, *TIM Sept. 2019* 3253-3267

IR Transceiver Irradiation Characteristics on Bubble/Slug Flow Regimes in Conventional and Minichannels. *Mithran, N.*, +, *TIM Jan. 2019 240-249* 

### **Building management systems**

RSSI-Based Indoor Localization and Identification for ZigBee Wireless Sensor Networks in Smart Homes. *Bianchi*, V., +, *TIM Feb.* 2019 566-575

### **Bumerical simulation**

TDR Prediction Method for PIM Distortion in Loose Contact Coaxial Connectors. Yang, H., +, TIM Dec. 2019 4689-4693

### Busbars

An Improved Load Flow Method for MV Networks Based on LV Load Measurements and Estimations. Cataliotti, A., +, TIM Feb. 2019 430-438

C

### Cable insulation

Development of a Nonintrusive True-RMS AC Voltage Measurement Probe. Shenil, P.S., +, TIM Oct. 2019 3899-3906

Multiple Partial Discharge Source Localization in Power Cables Through Power Spectral Separation and Time-Domain Reflectometry. *Robles, G.*, +, *TIM Dec. 2019 4703-4711* 

#### Cable jointing

- Effects of Mechanical Pressure on the Tangent Delta of MV Cable Joints. Ghaderi, A., +, TIM July 2019 2656-2658
- Effects of Temperature on MV Cable Joints Tan Delta Measurements. *Ghaderi*, A., +, *TIM Oct.* 2019 3892-3898

### CAD

Binary Volumetric Convolutional Neural Networks for 3-D Object Recognition. *Ma*, *C*., +, *TIM Jan. 2019 38-48* 

### Calibration

- 3-D Computational Ghost Imaging With Extended Depth of Field for Measurement. Yang, Z., +, TIM Dec. 2019 4906-4912
- A Blind Calibration Method for Phase-of-Arrival-Based Localization of Passive UHF RFID Transponders. Scherhaufl, M., +, TIM Jan. 2019 261-268
- A DC-Coupled High Dynamic Range Biomedical Radar Sensor With Fast-Settling Analog DC Offset Cancelation. *Tang, D.*, +, *TIM May 2019* 1441-1450
- A Differential Accelerometer System: Offline Calibration and State Estimation. *Belkhouche, F., TIM Sept. 2019 3109-3118*
- A Low-Cost Generator for Testing and Calibrating Current Transformers. Cristaldi, L., +, TIM Aug. 2019 2792-2799
- A Low-Cost LED-Based Solar Simulator. Lopez-Fraguas, E., +, TIM Dec. 2019 4913-4923
- A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014*
- A Method for Remote Estimation of Wattmeter's Adjustment Gain. *Nakutis*, Z., +, *TIM March* 2019 713-721
- A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan*, S., +, *TIM Aug*, 2019 2871-2879
- A Multisignal Wavelet Variance-Based Framework for Inertial Sensor Stochastic Error Modeling. *Radi*, A., +, *TIM Dec.* 2019 4924-4936
- A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902
- A New Method for Calibrating Nonlinear Coefficients of PIGA on Linear Vibrator. Ren, S., +, TIM Aug. 2019 2898-2906
- A Novel Calibration Method for Magnetometer Array in Nonuniform Background Field. Mu, Y., +, TIM Oct. 2019 3677-3685
- A Novel Method for Calibration of ADC Using JAWS. Sira, M., +, TIM June 2019 2091-2099
- A Robust and Rapid Camera Calibration Method by One Captured Image. Zhang, J., +, TIM Oct. 2019 4112-4121
- A Robust Pedestrian Dead Reckoning System Using Low-Cost Magnetic and Inertial Sensors. Shi, L., +, TIM Aug. 2019 2996-3003
- A Stochastic Optimization Approach to Magnetometer Calibration With Gradient Estimates Using Simultaneous Perturbations. *Tahir, M.*, +, *TIM Oct. 2019 4152-4161*
- A Synchronized Current-Comparator Bridge for the Calibration of Analog Merging Units. *Djokic*, B., +, *TIM June 2019 1955-1960*
- An Accurate Visible Light Positioning System Using Regenerated Fingerprint Database Based on Calibrated Propagation Model. *Alam, F.*, +, *TIM Aug. 2019 2714-2723*
- Application of Charge-Sensitive Preamplifier for the Calibration of Partial Discharge Calibrators Below 1 pC. *Havunen*, *J.*, +, *TIM June 2019 2034-2040*
- Calibrating Ultrastable Low-Noise Current Amplifiers of the Second Generation With a Cryogenic Current Comparator. *Gotz, M.*, +, *TIM June 2019* 2027-2033
- Calibration and Characterization of a Magnetic Positioning System Using a Robotic Arm. Santoni, F., +, TIM May 2019 1494-1502
- Calibration of Gigahertz Microwave Generator for the Programmable Josephson Voltage Standard at NRC. Gertsvolf, M., +, TIM June 2019 1901-1906
- Calibration of the Absolute Linearity of Lock-In Amplifiers. *Corminboeuf, D., TIM June 2019 2060-2065*
- Calibration of Vision-Based Measurement of Pain Intensity With Multiple Expert Observers. Casti, P., +, TIM July 2019 2442-2450

- Calibration of Voltage and Current Transducers for DC Railway Systems. Crotti, G., +, TIM Oct. 2019 3850-3860
- Characterization of 1 k $\Psi$  Metal-Foil Standard Resistors and Continuing Drift-Rate Evaluation of 1  $\Omega$  and 10  $\Omega$  Standard Resistors. *Abe, T., +, TIM June 2019 2078-2083*
- Characterization of a Type-N Coaxial Microcalorimeter for Use as Microwave Power Standard at CENAM. *Botello-Perez, M.*, +, *TIM Feb. 2019* 558-565
- Coaxial Probe for Dielectric Measurements of Aerated Pulverized Materials. Neumayer, M., +, TIM May 2019 1402-1411
- Compact Distributed Digitizers With Metrological Precision. *Houtzager, E.*, +, *TIM June 2019 1653-1658*
- Comparison of Reference Setups for Calibrating Power Transformer Loss Measurement Systems. *Rietveld, G.*, +, *TIM June 2019 1732-1739*
- Comparison of Two Methods for Phase Angle Measurement. *Velychko, O.*, +, *TIM June 2019 1740-1747*
- Compensation of Nonlinearity of Voltage and Current Instrument Transformers. Cataliotti, A., +, TIM May 2019 1322-1332
- Design and Characterization of a Fringing Field Capacitive Soil Moisture Sensor. *Protim Goswami, M.*, +, *TIM March 2019 913-922*
- Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. *Horst, M.J.*, +, *TIM Nov. 2019 4400-4411*
- Determination of Voltage Dependence in High-Voltage Standard Capacitors. Slomovitz, D., +, TIM June 2019 2136-2143
- Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553
- Electrometer Calibration With Sub-Part-Per-Million Uncertainty. *Scherer, H.*, +, *TIM June 2019 1887-1894*
- Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking. Dai, H., +, TIM Sept. 2019 3379-3386
- High-Accuracy Localization and Calibration for 5-DoF Indoor Magnetic Positioning Systems. *Hehn, M., +, TIM Oct. 2019 4135-4145*
- High-Precision Time-of-Flight Determination Algorithm for Ultrasonic Flow Measurement. Sunol, F., +, TIM Aug. 2019 2724-2732
- Improvement of Broadband Characterization of Dielectric Waveguide at the *Ka*-Band by Using TRL Calibration Method. *Kato*, Y., +, *TIM June 2019* 1788-1795
- Improving a Commodity Dust Sensor to Enable Particle Size Analysis. *Pedersini, F., TIM Jan. 2019 177-188*
- Indoor Occupancy Awareness and Localization Using Passive Electric Field Sensing. *Tang, X.*, +, *TIM Nov. 2019 4535-4549*
- Interlaboratory Nanoamp Current Comparison With Subpart-Per-Million Uncertainty. Giblin, S.P., +, TIM June 2019 1996-2002
- Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. *Das, S., +, TIM Sept. 2019 3308-3320*
- Measurement of Submilligram Masses Using Electrostatic Force. Shaw, G.A., +, TIM June 2019 2015-2020
- Method for the Absolute Calibration of Direct-Current Current Transducers. Zhao, J., +, TIM June 2019 1961-1966
- Modeling and Validation of Fixture-Induced Error for Impedance Measurements. Nelson, B.W., +, TIM Jan. 2019 129-137
- Models for Synchrophasor With Step Discontinuities in Magnitude and Phase: Estimation and Performance. *Martins, M.B.*, +, *TIM June 2019* 2007-2014
- Monocular Vision-Based Parameter Estimation for Mobile Robotic Painting. Zhao, Q., +, TIM Oct. 2019 3589-3599
- NIST-Traceable Microwave Power Measurement in a Waveguide Calorimeter With Correlated Uncertainties. Gu, D., +, TIM June 2019 2280-2287
- Novel Broadband Calibration Method of Current Shunts Based on VNA. Ouameur, M., +, TIM March 2019 854-863
- Null Technique for Precision RF Phase Shift Measurements. Widarta, A., TIM June 2019 1840-1843
- Off-the-Shelf Measurement Setup for Compressive Imaging. Ralasic,  $I., +, TIM Feb.\ 2019\ 502-511$

- On-Wafer Coplanar Waveguide Standards for S-Parameter Measurements of Balanced Circuits Up to 40 GHz. *Pham, T.D.*, +, *TIM June 2019 2160-2167*
- Partially Filled Substrate Integrated Waveguide-Based Microwave Technique for Broadband Dielectric Characterization. *Tiwari, N.K.*, +, *TIM Aug.* 2019 2907-2915
- Pixels and 3-D Points Alignment Method for the Fusion of Camera and LiDAR Data. Xie, S., +, TIM Oct. 2019 3661-3676
- PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. Chakraborty, M., +, TIM Jan. 2019 189-196
- Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. Zhao, J., +, TIM Sept. 2019 3268-3277
- Product-Specific Nonlinear Characterization and Instrument for Illumination Angle Measurement With Manufacturing Defects. *Liu*, G., +, *TIM Sept.* 2019 3299-3307
- Radiation-Pressure-Enabled Traceable Laser Sources at CW Powers up to 50 kW. Williams, P.A., +, TIM June 2019 1833-1839
- Radiometric Calibration of Digital Counts of Infrared Thermal Cameras. Gonzalez-Chavez, O., +, TIM Nov. 2019 4387-4399
- Resolution Enhancement in Directly Interfaced System for Inductive Sensors. Asif, A., +, TIM Oct. 2019 4104-4111
- Self-Calibrated Multiharmonic CO<sub>2</sub> Sensor Using VCSEL for Urban *In Situ* Measurement. *Lan, L., +, TIM April 2019 1140-1147*
- Self-Calibration and Verification of Phase Angle Errors of Two Voltage Dividers at High Frequencies. Shi, Z., +, TIM June 2019 2053-2059
- The ACE1 Electrical Impedance Tomography System for Thoracic Imaging. Mellenthin, M.M., +, TIM Sept. 2019 3137-3150
- The Focal-Plane Detector Package on the TUNL Split-Pole Spectrograph. Marshall, C., +, TIM Feb. 2019 533-546
- The Improvements of the NIM-2 Joule Balance. Li, Z., +, TIM June 2019 2208-2214
- Torsional Balance for Simultaneous Evaluation of Thrust Force and Flow Velocity of Electrostatically Induced Ionic Wind. *Lee, J.R.*, +, *TIM Nov.* 2019 4518-4525
- Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges. *Kim, D.B.*, +, *TIM June 2019 1941-1947*
- Uncertainty Analysis Method Including Influence of Probe Alignment on On-Wafer Calibration Process. Sakamaki, R., +, TIM June 2019 1748-1755
- Uncertainty Analysis of Far-Field Gain Measurement of DRGH Using the Single-Antenna Method and Amplitude Center Distance. *Matsukawa*, S., +, TIM June 2019 1756-1764
- Using High-Precision Multimeter Digitizer for High Short-Circuit Current Calibration. *Roccato*, *P.E.*, +, *TIM June 2019 2100-2105*

### Calorimeters

- Characterization of a Type-N Coaxial Microcalorimeter for Use as Microwave Power Standard at CENAM. *Botello-Perez, M.*, +, *TIM Feb. 2019* 558-565
- Identification of RF&MW Microcalorimeter Weak Points by Means of Uncertainty Analysis. Oberto, L., TIM June 2019 1948-1954
- NIST-Traceable Microwave Power Measurement in a Waveguide Calorimeter With Correlated Uncertainties. Gu, D., +, TIM June 2019 2280-2287

### Cameras

- A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014*
- A Novel Stereo Vision Measurement System Using Both Line Scan Camera and Frame Camera. Liu, Z., +, TIM Oct. 2019 3563-3575
- A Robust and Rapid Camera Calibration Method by One Captured Image. Zhang, J., +, TIM Oct. 2019 4112-4121
- Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures. Foudazi, A., +, TIM Feb. 2019 576-585
- An Optical Sampling System for Distributed Atmospheric Particulate Matter. *Lombardo, L.*, +, *TIM July 2019 2396-2403*
- Contactless Monitoring of Pulse Rate and Eye Movement for Uveal Melanoma Patients Undergoing Radiation Therapy. *Lin*, Y., +, *TIM Feb. 2019* 474-482

- Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light. *Dashpute, A.*, +, *TIM Jan. 2019 160-168* Design of a Compact *V*-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. *Horst, M.J.*, +, *TIM Nov. 2019 4400-4411*
- Effects of Aperture Diameter on Image Blur of CMOS Image Sensor With Pixel Apertures. *Choi, B., +, TIM May 2019 1382-1388*
- Exposure Measurement and Fusion via Adaptive Multiscale Edge-Preserving Smoothing. Que, Y., +, TIM Dec. 2019 4663-4674
- Monocular Vision-Based Parameter Estimation for Mobile Robotic Painting. Zhao, Q., +, TIM Oct. 2019 3589-3599
- Off-the-Shelf Measurement Setup for Compressive Imaging. *Ralasic*, *I.*, +, *TIM Feb.* 2019 502-511
- On the Design of Force Sensors Based on Frustrated Total Internal Reflection. Lavatelli, A., +, TIM Oct. 2019 4065-4074
- Performance Analysis of the PMD Camboard Picoflexx Time-of-Flight Camera for Markerless Motion Capture Applications. *Pasinetti*, S., +, *TIM Nov.* 2019 4456-4471
- Pixels and 3-D Points Alignment Method for the Fusion of Camera and LiDAR Data. Xie, S., +, TIM Oct. 2019 3661-3676
- Radiometric Calibration of Digital Counts of Infrared Thermal Cameras. Gonzalez-Chavez, O., +, TIM Nov. 2019 4387-4399
- Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform. Cortes-Osorio, J.A., +, TIM Oct. 2019 4038-4050

#### Cancer

- Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. *Horst, M.J.*, +, *TIM Nov. 2019 4400-4411*
- Pulse Pileup Correction of Signals From a Pyroelectric Sensor for Phase-Insensitive Ultrasound Computed Tomography. *Baker, C.*, +, *TIM Oct. 2019* 3920-3931

#### Capacitance measurement

- A Simple Electrostatic Balance for the Milligram Range. *Pisani, M.*, +, *TIM June 2019 2223-2228*
- Accurate Technique for Electrical Permittivity Measurement of Biological Tissue Specimens at Low Frequencies. *Hesabgar, S.M.*, +, *TIM July 2019* 2479-2490
- An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836
- Design and Characterization of a Fringing Field Capacitive Soil Moisture Sensor. *Protim Goswami, M.*, +, *TIM March 2019 913-922*
- Development of a Nonintrusive True-RMS AC Voltage Measurement Probe. Shenil, P.S., +, TIM Oct. 2019 3899-3906
- Direct Image Reconstruction for Electrical Capacitance Tomography Using Shortcut D-Bar Method. Zhao, J., +, TIM Feb. 2019 483-492
- Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan*, *Z.*, +, *TIM Feb.* 2019 462-473
- Frequency Estimation Based on Moving-Window DFT With Fractional Bin-Index for Capacitance Measurement. *Tyagi*, *T.*, +, *TIM July 2019* 2560-2569
- Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. *Acharyya*, D., +, TIM Aug. 2019 3004-3011
- Nonlinearity of the NIST Calculable Capacitor. Wang, Y., +, TIM June 2019 1895-1900
- PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. *Chakraborty*, M., +, TIM Jan. 2019 189-196
- Realization of Absolute Phase and AC Resistance of Current Shunts by Ratio Measurements. *Bergsten, T., +, TIM June 2019 2041-2046*
- Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges. *Kim, D.B., +, TIM June 2019 1941-1947*

### Capacitive sensors

- A Capacitive-Coupled Noncontact Probe for the Measurement of Conductivity of Liquids. *Tejaswini*, *K.K.*, +, *TIM May 2019 1602-1610*
- A Precision, Energy-Efficient, Oversampling, Noise-Shaping Differential SAR Capacitance-to-Digital Converter. *Alhoshany, A.*, +, *TIM Feb. 2019* 392-401

An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836

Comparative Study on Modeling Approaches of V-Shaped MEMS Temperature Sensors. *Cohen, Y., +, TIM Oct. 2019 3766-3775* 

Design and Characterization of a Fringing Field Capacitive Soil Moisture Sensor. *Protim Goswami, M.*, +, *TIM March 2019 913-922* 

Development of a Nonintrusive True-RMS AC Voltage Measurement Probe. Shenil, P.S., +, TIM Oct. 2019 3899-3906

Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. Zeeshan, Z., +, TIM Feb. 2019 462-473

Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. Acharyya, D., +, TIM Aug. 2019 3004-3011

PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. *Chakraborty, M.*, +, *TIM Jan. 2019 189-196* 

Signal Processing for Capacitive Ice Sensing: Electrode Topology and Algorithm Design. *Neumayer, M.*, +, *TIM May 2019 1458-1466* 

#### Capacitive transducers

An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836

### Capacitors

A Capacitive-Coupled Noncontact Probe for the Measurement of Conductivity of Liquids. *Tejaswini*, K.K., +, TIM May 2019 1602-1610

A Fundamental Step-Up Method for Standard Voltage Transformers Based on an Active Capacitive High-Voltage Divider. *Mohns, E., +, TIM June* 2019 2121-2128

An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836

Nonlinearity of the NIST Calculable Capacitor. Wang, Y., +, TIM June 2019 1895-1900

Practical Application of Latest Optimal Hollow Active Auxiliary Electrode in Vertical Calculable Cross-Capacitor at NIM. Huang, L., +, TIM June 2019 2144-2150

Reference Ultralow DC Current Source Between 1 fA and 100 pA at TÜB - TAK UME. Erkan, O., +, TIM June 2019 2201-2207

Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges. *Kim, D.B., +, TIM June 2019 1941-1947* 

### Carbon

Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang, J.*, +, *TIM July 2019* 2387-2393

### Carbon compounds

Self-Calibrated Multiharmonic CO<sub>2</sub> Sensor Using VCSEL for Urban *In Situ* Measurement. *Lan, L.*, +, *TIM April 2019 1140-1147* 

### Carbon fiber reinforced composites

Sparse Reconstruction-Based Thermal Imaging for Defect Detection. *Roy*, D., +, *TIM Nov.* 2019 4550-4558

### Carbon nanotubes

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

### Cardiology

An Extended Kalman Filter for Fetal Heart Location Estimation During Doppler-Based Heart Rate Monitoring. *Hamelmann*, P., +, TIM Sept. 2019 3221-3231

Video-Based Heart Rate Measurement: Recent Advances and Future Prospects. Chen, X., +, TIM Oct. 2019 3600-3615

### Cast iron

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S.*, +, *TIM July 2019 2335-2345* 

### Casting

Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. He, Q., +, TIM Oct. 2019 3456-3467

### Catheters

A Measurement System to Estimate the Pleural Pressure From the CVP for Respiratory System Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2469-2478* 

#### **CCD** image sensors

A Hyperspectral Imaging Instrumentation Architecture Based on Accessible Optical Disc Technology and Frequency-Domain Analyses. *Brodie, C.H.*, +, *TIM July 2019 2531-2538* 

#### Celestial mechanics

INS/CNS Integrated Navigation Based on Corrected Infrared Earth Measurement. Gou, B., +, TIM Sept. 2019 3358-3366

#### Cellular biophysics

On the Suitability of Low-Cost Compact Instrumentation for Blood Impedance Measurements. *Addabbo*, T., +, TIM July 2019 2412-2424

#### Cellular radio

Design of Experiments to Compare Base Station Antenna Configurations. Caban, S., +, TIM Oct. 2019 3484-3493

#### Cepstral analysis

Characterization of S<sub>1</sub> and S<sub>2</sub> Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, M., +, TIM Sept. 2019 3211-3220

### Ceramic capacitors

Developing a High-Power Multilayer Ceramic Capacitor Qualification Test Setup for RF Subsystems. *Algudsi*, A., +, *TIM Sept. 2019 3396-3404* 

#### Cesium

Frequency Extension of Atomic Measurement of Microwave Strength Using Zeeman Effect. *Kinoshita, M.*, +, *TIM June 2019 2274-2279* 

#### Channel estimation

Parameter Measurement of M-Ary PSK Signals With Finite Rate of Innovation. Fu, N., +, TIM May 2019 1271-1283

#### Channel flow

A New Contactless Bubble/Slug Velocity Measurement Method of Gas—Liquid Two-Phase Flow in Small Channels. *Huang, J.*, +, *TIM Sept. 2019* 3253-3267

### Chaos

Chaos-Based Bitwise Dynamical Pseudorandom Number Generator On FPGA. *Garcia-Bosque*, M., +, TIM Jan. 2019 291-293

### Chemical reactors

Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501

### Chemical sensors

A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan*, S., +, TIM Aug. 2019 2871-2879

A Novel Sensing Methodology to Detect Furfural in Water, Exploiting MIPs, and Inkjet-Printed Optical Waveguides. *Cennamo*, N., +, *TIM May 2019* 1582-1589

Concentration Measurement of Microliter-Volume Water-Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct.* 2019 3712-3717

### Chemical technology

State Estimation of Slow-Rate Integrated Measurement Systems in the Presence of Parametric Uncertainties. Salehi, Y., +, TIM Oct. 2019 3983-3991

### Chemical variables measurement

Concentration Measurement of Microliter-Volume Water-Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. *Acharyya*, D., +, TIM Aug. 2019 3004-3011

Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501

Peculiarities of Hardware for Electrochemical Noise Measurement in Chemical Power Sources. Astafev, E., +, TIM Nov. 2019 4412-4418

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

Self-Calibrated Multiharmonic CO<sub>2</sub> Sensor Using VCSEL for Urban *In Situ* Measurement. *Lan, L., +, TIM April 2019 1140-1147* 

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717* 

Vision-Based Measurement of Dust Concentration by Image Transmission. Li, G., +, TIM Oct. 2019 3942-3949

#### Circuit breakers

A New Vibration Testing Platform for Electronic Current Transformers. *Li*, *Z.*, +, *TIM March* 2019 704-712

An Arc Fault Detection Method Based on Current Amplitude Spectrum and Sparse Representation. *Qu*, *N.*, +, *TIM Oct. 2019 3785-3792* 

### Circuit faults

Time-Domain Gating Applied to the Quantitative Evaluation of Soft Defects in Embedded Electric Cables. *Loete, F., TIM Nov. 2019 4368-4375* 

### Circuit feedback

FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386* 

#### Circuit testing

An Improved Match Method of Capacitive Divider for Measurement of Nanosecond-Range HV Pulses. Yu, B., +, TIM Oct. 2019 4146-4151

#### Circuit theory

Low-Frequency AC–DC Differences of a Series–Parallel Circuit of Thermal Converters. *Amagai*, *Y*., +, *TIM June 2019 1907-1912* 

#### Claddings

Design and Characterization of a Fringing Field Capacitive Soil Moisture Sensor. *Protim Goswami*, M., +, TIM March 2019 913-922

#### Cleaning

Development of a Novel Linear ERT Sensor to Measure Surface Deposits. Ren, Z., +, TIM March 2019 754-761

#### Clocks

A 2.3-ps RMS Resolution Time-to-Digital Converter Implemented in a Low-Cost Cyclone V FPGA. Sui, T., +, TIM Oct. 2019 3647-3660

Measurement of the Absolute Phase Error of Digitizers. Crotti, G., +, TIM June 2019 1724-1731

Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088

Two-Branch Fiber Link for International Clock Networks. Xu, D., +, TIM June 2019 2195-2200

### Closed loop systems

A Current-Driven Six-Channel Potentiostat for Rapid Performance Characterization of Microbial Electrolysis Cells. *Molderez*, *T.R.*, +, *TIM Dec.* 2019 4694-4702

Disturbance Observer-Based Control of Tip-Tilt Mirror for Mitigating Telescope Vibrations. *Tang, T.*, +, *TIM Aug. 2019 2785-2791* 

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao*, *X.*, +, *TIM Nov. 2019 4285-4299* 

### **Cloud computing**

Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure. Pau, M., +, TIM Nov. 2019 4300-4312

Using the Cloud to Improve Sensor Availability and Reliability in Remote Monitoring. Ooi, B.Y., +, TIM May 2019 1522-1532

### Clouds

Field Study of LWC and MVD Using the Droplet Imaging Instrument. Rydblom, S., +, TIM Feb. 2019 614-622

### Clustering methods

OPTICS-Based Template Matching for Vision Sensor-Based Shoe Detection in Human–Robot Coexisting Environments. *Paral, P.*, +, *TIM Nov. 2019* 4276-4284

### CMOS analog integrated circuits

Output Power and Gain Monitoring in RF CMOS Class A Power Amplifiers by Thermal Imaging. *Perpina, X.*, +, *TIM Aug. 2019 2861-2870* 

Ultralow-Power Synchronous Demodulation for Low-Level Sensor Signal Detection. *Maya-Hernandez, P.M.*, +, *TIM Oct. 2019 3514-3523* 

### CMOS digital integrated circuits

Resolution Enhancement in Directly Interfaced System for Inductive Sensors. Asif, A., +, TIM Oct. 2019 4104-4111

#### CMOS image sensors

Effects of Aperture Diameter on Image Blur of CMOS Image Sensor With Pixel Apertures. *Choi, B., +, TIM May 2019 1382-1388* 

### **CMOS** integrated circuits

A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan*, S., +, *TIM Aug.* 2019 2871-2879

A Precision, Energy-Efficient, Oversampling, Noise-Shaping Differential SAR Capacitance-to-Digital Converter. *Alhoshany, A.*, +, *TIM Feb. 2019* 392-401

Fault Detection of VLSI Power Supply Network Based on Current Estimation From Surface Magnetic Field. *Takahashi*, D., +, TIM July 2019 2519-2530

Reference Ultralow DC Current Source Between 1 fA and 100 pA at TÜB - TAK UME. Erkan, O., +, TIM June 2019 2201-2207

Resolution Enhancement in Directly Interfaced System for Inductive Sensors. Asif, A., +, TIM Oct. 2019 4104-4111

### Coagulation

Power Calibration of Electrosurgical Units. *Arencibia, R.V.*, +, *TIM Dec.* 2019 4798-4806

#### Coating techniques

Detecting Defects in Porcelain Postinsulator Coated With Room Temperature Vulcanized Silicone Rubber by Pulsed Thermography. *Liu*, *L.*, +, *TIM Jan. 2019 225-233* 

### Coatings

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha, T.*, +, *TIM March 2019 903-912* 

Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang, J.*, +, *TIM July 2019* 2387-2393

#### Coaxial cables

Broadband Permittivity Measurements up to 170-GHz Using Balanced-Type Circular-Disk Resonator Excited by 0.8-mm Coaxial Line. *Kato, Y., +, TIM June 2019 1796-1805* 

Low Frequency Model-Based Identification of Soft Impedance Faults in Cables. Cozza, A., TIM Oct. 2019 3524-3535

Truly Distributed Coaxial Cable Sensing Based on Random Inhomogeneities. Zhu, C., +, TIM Nov. 2019 4600-4607

### Coaxial waveguides

Towards Accurate and Wideband *In Vivo* Measurement of Skin Dielectric Properties. *Gao*, Y., +, *TIM Feb. 2019 512-524* 

### Cognition

Trip-Based Measures of Naturalistic Driving: Considerations and Connections With Cognitive Status in Older Adult Drivers. Howcroft, J., +, TIM July 2019 2451-2459

### Cognitive radio

Effects of Real Instrument on Performance of an Energy Detection-Based Spectrum Sensing Method. Capriglione, D., +, TIM May 2019 1302-1312

### Coils

A Novel Calibration Method for Magnetometer Array in Nonuniform Background Field. Mu, Y., +, TIM Oct. 2019 3677-3685

A Parasitic Displacement Measurement System for Suspended Coil in Joule Balance. *Bai*, Y, +, *TIM June 2019 2237-2245* 

Application of FRA to Improve the Design and Maintenance of Wireless Power Transfer Systems. *Kim, D.*, +, *TIM Nov. 2019 4313-4325* 

Broken Rotor Bar Detection in Induction Motors Based on Air-Gap Rotational Magnetic Field Measurement. *Soleimani, Y.*, +, *TIM Aug. 2019* 2916-2925

Calibration and Characterization of a Magnetic Positioning System Using a Robotic Arm. Santoni, F., +, TIM May 2019 1494-1502

Design and Analysis of a Relaxation Oscillator-Based Interface Circuit for LVDT. *Ganesan, H.*, +, *TIM May 2019 1261-1270* 

Design of Cable Parallel Air-Core Coil Sensor to Reduce Motion-Induced Noise in Helicopter Transient Electromagnetic System. *Liu*, F., +, *TIM Feb.* 2019 525-532

Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient. *Zhang, X.*, +, *TIM March* 2019

- Eddy Current Testing Probe Based on Double-Coil Excitation and GMR Sensor. Bernieri, A., +, TIM May 2019 1533-1542
- Localization of a Mobile Platform Equipped With a Rotating Magnetic Dipole Source. Sheinker, A., +, TIM Jan. 2019 116-128
- Magnetic Source Imaging Using a Pulsed Optically Pumped Magnetometer Array. Borna, A., +, TIM Feb. 2019 493-501
- Optimization Procedure for the Determination of Faraday's Voltage in UME Kibble Balance (July 2018). *Ahmedov, H.*, +, *TIM June 2019 2172-2175*
- Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088
- Sensitivity and Resolution Enhancement of Coupled-Core Fluxgate Magnetometer by Negative Feedback. Li, J., +, TIM Feb. 2019 623-631

#### Colorimetry

Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131

#### Combustion

- Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131
- Intelligent Diagnosis of V-Type Marine Diesel Engines Based on Multifeatures Extracted From Instantaneous Crankshaft Speed. Zhang, M., +, TIM March 2019 722-740

#### **Comparators** (circuits)

Resolution Enhancement in Directly Interfaced System for Inductive Sensors. Asif, A., +, TIM Oct. 2019 4104-4111

#### Compensation

- A Low-Cost Generator for Testing and Calibrating Current Transformers. Cristaldi, L., +, TIM Aug. 2019 2792-2799
- A Measurement Methodology for the Characterization of a Compensated Nonlinear Energy Harvester for Vertical Operation. *Ando, B.*, +, *TIM Aug.* 2019 3032-3041
- A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902
- A Novel Calibration Method for Magnetometer Array in Nonuniform Background Field. Mu, Y., +, TIM Oct. 2019 3677-3685
- Compensation of Current Transformers' Nonlinearities by Tensor Linearization. Collin, A.J., +, TIM Oct. 2019 3841-3849
- Compensation of Nonlinearity of Voltage and Current Instrument Transformers. Cataliotti, A., +, TIM May 2019 1322-1332
- Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking. Dai, H., +, TIM Sept. 2019 3379-3386
- Joint Compensation of Jitter Noise and Time-Shift Errors in Multichannel Sampling System. *Araghi*, H., +, TIM Oct. 2019 3932-3941
- Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. *Das, S., +, TIM Sept. 2019 3308-3320*
- Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088
- The Status of PTB's Nanonewton Force Facility. Nesterov, V., +, TIM June 2019 1982-1989

### Compressed sensing

- Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli*, A., +, *TIM July 2019 2433-2441*
- Fast Nonlinear Chirplet Dictionary-Based Sparse Decomposition for Rotating Machinery Fault Diagnosis Under Nonstationary Conditions. *Yang, B.*, +, *TIM Dec. 2019 4736-4745*
- Identification and Estimation of Harmonic Sources Based on Compressive Sensing. Carta, D., +, TIM Jan. 2019 95-104
- New Measurement Algorithm for Supraharmonics Based on Multiple Measurement Vectors Model and Orthogonal Matching Pursuit. *Zhuang*, S., +, *TIM June 2019 1671-1679*
- Off-the-Shelf Measurement Setup for Compressive Imaging. *Ralasic*, *I.*, +, *TIM Feb. 2019 502-511*

### Computational complexity

- Effective and Efficient Blind Quality Evaluator for Contrast Distorted Images. Yue, G., +, TIM Aug. 2019 2733-2741
- Improved Blind Timing Skew Estimation Based on Spectrum Sparsity and ApFFT in Time-Interleaved ADCs. Liu, S., +, TIM Jan. 2019 73-86

- Localization of a Mobile Platform Equipped With a Rotating Magnetic Dipole Source. Sheinker, A., +, TIM Jan. 2019 116-128
- Sparse Reconstruction-Based Thermal Imaging for Defect Detection. *Roy*, D., +, *TIM Nov.* 2019 4550-4558

#### Computational fluid dynamics

- A Novel Sensitivity Matrix Construction Method for Ultrasonic Tomography Based on Simulation Studies. *Li*, *N.*, +, *TIM Oct. 2019 3548-3562*
- Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan, Z.*, +, *TIM Feb. 2019 462-473*

#### Computer vision

- A Coarse-to-Fine Model for Rail Surface Defect Detection. Yu, H., +, TIM March 2019 656-666
- Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou, X.*, +, *TIM Nov. 2019 4253-4267*
- Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning. *Kang, G.*, +, *TIM Aug.* 2019 2679-2690
- Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. He, Q., +, TIM Oct. 2019 3456-3467

### Computerized instrumentation

- A Stochastic Optimization Approach to Magnetometer Calibration With Gradient Estimates Using Simultaneous Perturbations. *Tahir, M.*, +, *TIM Oct. 2019 4152-4161*
- Calibration of Vision-Based Measurement of Pain Intensity With Multiple Expert Observers. Casti, P., +, TIM July 2019 2442-2450
- Closed-Loop Optimization of DIC Speckle Patterns Based on Simulated Experiments. *Lavatelli*, A., +, *TIM Nov. 2019 4376-4386*
- Deep Nearest Class Mean Model for Incremental Odor Classification. *Cheng, Y.*, +, *TIM April 2019 952-962*
- Low-order Nonlinear Finite-Impulse Response Soft Sensors for Ionic Electroactive Actuators Based on Deep Learning. *Ando, B., +, TIM May 2019* 1637-1646
- Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. *Acharyya*, D., +, TIM Aug. 2019 3004-3011
- Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *Aranzabal*, N., +, *TIM April 2019 1062-1070*
- On-Line Measurement of Dynamic Tilt Angle by Compensating Gyroscope Drift Error. Shi, L., +, TIM Sept. 2019 3244-3252

### **Computerized monitoring**

On-Site Reliable Wheel Size Measurement Based on Multisensor Data Fusion. *Pan, X.*, +, *TIM Nov. 2019 4575-4589* 

### Computerized tomography

Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. *Yin, M.*, +, *TIM Jan.* 2019 49-64

### Concave programming

Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461

### Condensation

Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061

### **Condition monitoring**

- Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753
- An Enhanced Time-Reversal Imaging Algorithm-Driven Sparse Linear Array for Progressive and Quantitative Monitoring of Cracks. *Wang, Q.*, +, *TIM Oct. 2019 3433-3445*
- Application of FRA to Improve the Design and Maintenance of Wireless Power Transfer Systems. Kim, D., +, TIM Nov. 2019 4313-4325
- Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233*
- Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019*

- Design of Multichannel and Multihop Low-Power Wide-Area Network for Aircraft Vibration Monitoring. *Gao*, S., +, *TIM Dec. 2019 4887-4895*
- Doppler Distortion Removal in Wayside Circular Microphone Array Signals. Ouyang, K., +, TIM May 2019 1238-1251
- Early Fault Diagnosis and Classification of Ball Bearing Using Enhanced Kurtogram and Gaussian Mixture Model. *Hong, Y., +, TIM Dec. 2019* 4746-4755
- Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. Wang, H., +, TIM Oct. 2019 3536-3547
- Fault Detection for Rolling-Element Bearings Using Multivariate Statistical Process Control Methods. *Jin, X.*, +, *TIM Sept. 2019 3128-3136*
- Health Assessment Method for Electronic Components Subject to Condition Monitoring and Hard Failure. Zhao, S., +, TIM Jan. 2019 138-150
- Instantaneous Rotation Speed Measurement System Based on Variable Reluctance Sensors for Torsional Vibration Monitoring. *Addabbo*, T., +, TIM July 2019 2363-2373
- Intelligent Diagnosis of V-Type Marine Diesel Engines Based on Multifeatures Extracted From Instantaneous Crankshaft Speed. Zhang, M., +, TIM March 2019 722-740
- Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks. *Feng, B.*, +, *TIM May 2019 1252-1260*
- Low-Cost Online Contact Resistance Measurement of Power Connectors to Ease Predictive Maintenance. *Kadechkar, A., +, TIM Dec. 2019 4825-4833*
- Multiple Partial Discharge Source Localization in Power Cables Through Power Spectral Separation and Time-Domain Reflectometry. *Robles, G.*, +, *TIM Dec.* 2019 4703-4711
- Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V., +, TIM Aug. 2019 2691-2704*
- Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019 2819-2829*
- Time-Variant In-Circuit Impedance Monitoring Based on the Inductive Coupling Method. Zhao, Z., +, TIM Jan. 2019 169-176
- Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM. Wang, T., +, TIM March 2019 818-828
- Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors. *Reda, K.*, +, *TIM May 2019 1467-1476*

### Conductivity

Noninvasive Acoustoelectric Imaging of Resistivity Distribution Based on Lead Field Theory. *Song, X.*, +, *TIM Dec. 2019 4779-4786* 

### Conductors

A Novel Method for Wide Range Electric Current Measurement in Gas-Insulated Switchgears With Shielded Magnetic Measurements. *Khawaja*, A.H., +, TIM Dec. 2019 4712-4722

### Conductors (electric)

A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014* 

### Connectors

- TDR Prediction Method for PIM Distortion in Loose Contact Coaxial Connectors. Yang, H., +, TIM Dec. 2019 4689-4693
- Wideband Dielectric Characterization of 3-D Printable Triethylene Glycol Dimethacrylate Ester Plastic. Sharma, K., +, TIM Nov. 2019 4419-4426

### Constant current sources

- Electrometer Calibration With Sub-Part-Per-Million Uncertainty. *Scherer, H., +, TIM June 2019 1887-1894*
- Externally Referenced Current Source With Stability Down to 1 nA/A at 50 mA. Fan, I., +, TIM June 2019 2129-2135
- Reference Ultralow DC Current Source Between 1 fA and 100 pA at TÜBİ-TAK UME. Erkan, O., +, TIM June 2019 2201-2207

### Constants

- Optimization Procedure for the Determination of Faraday's Voltage in UME Kibble Balance (July 2018). Ahmedov, H., +, TIM June 2019 2172-2175
- The Design and Development of a Tabletop Kibble Balance at NIST. *Chao*, L., +, *TIM June 2019 2176-2182*
- The Improvements of the NIM-2 Joule Balance. Li, Z., +, TIM June 2019 2208-2214

Volume Measurement of a <sup>28</sup>Si-Enriched Sphere for a Determination of the Avogadro Constant at NMIJ. *Kuramoto*, N., +, TIM June 2019 1913-1920

#### **Construction industry**

Monocular Vision-Based Parameter Estimation for Mobile Robotic Painting. Zhao, Q., +, TIM Oct. 2019 3589-3599

#### Contact potential

The Status of PTB's Nanonewton Force Facility. Nesterov, V., +, TIM June 2019 1982-1989

#### **Contacts**

TDR Prediction Method for PIM Distortion in Loose Contact Coaxial Connectors. Yang, H., +, TIM Dec. 2019 4689-4693

#### Control engineering computing

ADMOST: UAV Flight Data Anomaly Detection and Mitigation via Online Subspace Tracking. He, Y., +, TIM April 2019 1035-1044

#### Control system synthesis

Disturbance Observer-Based Control of Tip-Tilt Mirror for Mitigating Telescope Vibrations. *Tang, T., +, TIM Aug. 2019 2785-2791* 

#### Converters

- A New Phase Difference Measurement System With Differential AC/Single-Ended DC Switching for One TVC. *Yamada, T.*, +, *TIM June 2019* 2021-2026
- Determination of AC–DC Transfer Difference of Calculable Thermal Voltage Converters in 1–30-MHz Frequency Range. *Grzenik, M.*, +, *TIM June* 2019 2072-2077
- Establishment of High-Voltage AC–DC Voltage Transfer Standards in 1–100-kHz Range at NMIJ. Fujiki, H., +, TIM June 2019 1921-1926

### Convex programming

Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461

#### Convolution

- Binary Volumetric Convolutional Neural Networks for 3-D Object Recognition. *Ma, C.*, +, *TIM Jan. 2019 38-48*
- Nonlinearity of the NIST Calculable Capacitor. Wang, Y., +, TIM June 2019 1895-1900

### Convolutional neural nets

- A CNN-Based Defect Inspection Method for Catenary Split Pins in High-Speed Railway. Zhong, J., +, TIM Aug. 2019 2849-2860
- Characterization of S<sub>1</sub> and S<sub>2</sub> Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, M., +, *TIM Sept. 2019 3211-3220*
- Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning. *Kang, G.*, +, *TIM Aug. 2019 2679-2690*
- Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network. Wei, X., +, TIM Nov. 2019 4481-4492
- Pilots' Fatigue Status Recognition Using Deep Contractive Autoencoder Network. Wu, E.Q., +, TIM Oct. 2019 3907-3919
- Surface Defects Detection Based on Adaptive Multiscale Image Collection and Convolutional Neural Networks. Sun, J., +, TIM Dec. 2019 4787-4797

### Cooling

- Characterization of DC Current Sensors With AC Distortion for Railway Applications. van den Brom, H.E., +, TIM June 2019 2084-2090
- Developing a High-Power Multilayer Ceramic Capacitor Qualification Test Setup for RF Subsystems. *Alqudsi*, A., +, *TIM Sept. 2019 3396-3404*
- Voltage Standard Based on Dry-Cooled High-Temperature Superconductor Josephson Junctions. *Khorshev, S.K.*, +, *TIM June 2019 2113-2120*

### Coplanar waveguides

- A High-Frequency and High Spatial Resolution Probe Design for EMI Prediction. *Yang, R.*, +, *TIM Aug. 2019 3012-3019*
- Asynchronous Optical Sampling for Laser-Based Vector Network Analysis on Coplanar Waveguides. Struszewski, P., +, TIM June 2019 2295-2302
- On-Wafer Coplanar Waveguide Standards for S-Parameter Measurements of Balanced Circuits Up to 40 GHz. *Pham, T.D.*, +, *TIM June 2019 2160-2167*

### Copper

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

Theoretical Analysis of Sensitivity Enhancement by Graphene Usage in Optical Fiber Surface Plasmon Resonance Sensors. *Melo, A.A.d.*, +, *TIM May 2019 1554-1560* 

#### Copper compounds

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha, T.*, +, *TIM March 2019 903-912* 

#### Correlation methods

- A Measurement of Noise Wave Correlation Matrix Using Noise Power Ratios. Lee, D., +, TIM July 2019 2579-2593
- Analysis of Correlation in the Intercomparison of DC Voltage Reference Standards. Sachica, M., +, TIM June 2019 2168-2171
- Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems. *Gupta, R.*, +, *TIM Aug.* 2019 3020-3031
- Online Precise Motion Measurement of 3-DOF Nanopositioners Based on Image Correlation. *Li*, *H*., +, *TIM March 2019 782-790*
- PAC Interaction Inspection Using Real-Time Contact Point Tracking. *Shen*, *Y*, +, *TIM Oct.* 2019 4051-4064
- Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. *Zhao, J., +, TIM Sept. 2019 3268-3277*
- Sparse Reconstruction-Based Thermal Imaging for Defect Detection. *Roy*, D., +, *TIM Nov. 2019 4550-4558*

#### Corrosion

Fiber Optic Sensors Based on Photoacoustic Effect for Rebar Corrosion Measurement. Du, C., +, TIM Nov. 2019 4559-4565

#### Corrosion resistance

A Novel Approach for Microbial Corrosion Assessment. *Iannucci, L.*, +, *TIM May 2019 1424-1431* 

#### Cost reduction

Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461

Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy. Wei, Z., +, TIM Jan. 2019 197-205

# Counting circuits

Measurement Uncertainty of Precise Interpolating Time Counters. Szplet, R., +, TIM Nov. 2019 4348-4356

Radiometric Calibration of Digital Counts of Infrared Thermal Cameras. Gonzalez-Chavez, O., +, TIM Nov. 2019 4387-4399

### Covariance matrices

Noise Power Estimators in ISM Radio Environments: Performance Comparison and Enhancement Using a Novel Samples Separation Technique. *Nikonowicz, J., +, TIM Jan. 2019 105-115* 

Optimum Placement of Phasor Measurement Units in Power Systems. *Sun*, *L.*, +, *TIM Feb. 2019 421-429* 

# Crack detection

An Enhanced Time-Reversal Imaging Algorithm-Driven Sparse Linear Array for Progressive and Quantitative Monitoring of Cracks. Wang, Q., +, TIM Oct. 2019 3433-3445

Nondestructive Testing of Nonmetallic Pipelines Using Microwave Reflectometry on an In-Line Inspection Robot. *Carrigan, T.D.*, +, *TIM Feb. 2019* 586-594

## Cracks

Comparison Study of Different Features for Pocket Length Quantification of Angular Defects Using Eddy Current Pulsed Thermography. *Zhu*, *J.*, +, *TIM May 2019 1373-1381* 

Detecting Defects in Porcelain Postinsulator Coated With Room Temperature Vulcanized Silicone Rubber by Pulsed Thermography. *Liu*, *L.*, +, *TIM Jan.* 2019 225-233

### Cranes

Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network. *Jin, Y., +, TIM April 2019 1026-1034* 

### Crosstalk

Ultrasonic Distance Measurement Method With Crosstalk Rejection at High Measurement Rate. Shin, S., +, TIM April 2019 972-979

### Crude oil

In Situ Measurement of Oil Slick Thickness. Saleh, M., +, TIM July 2019 2635-2647

IR Transceiver Irradiation Characteristics on Bubble/Slug Flow Regimes in Conventional and Minichannels. *Mithran, N.*, +, *TIM Jan. 2019 240-249* 

## Cryogenic electronics

AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K. *Kucera*, *J.*, +, *TIM June 2019 2106-2112* 

Calibrating Ultrastable Low-Noise Current Amplifiers of the Second Generation With a Cryogenic Current Comparator. *Gotz, M.*, +, *TIM June 2019 2027-2033* 

Interlaboratory Nanoamp Current Comparison With Subpart-Per-Million Uncertainty. *Giblin, S.P., +, TIM June 2019 1996-2002* 

Voltage Standard Based on Dry-Cooled High-Temperature Superconductor Josephson Junctions. *Khorshev, S.K.*, +, *TIM June 2019 2113-2120* 

#### Cryogenics

Graphene Devices for Tabletop and High-Current Quantized Hall Resistance Standards. *Rigosi, A.F.*, +, *TIM June 2019 1870-1878* 

#### Cryptography

Chaotic Encryption Applied to Optical Ethernet in Industrial Control Systems. Perez-Resa, A., +, TIM Dec. 2019 4876-4886

#### **Current comparators**

A Synchronized Current-Comparator Bridge for the Calibration of Analog Merging Units. *Djokic, B., +, TIM June 2019 1955-1960* 

Calibrating Ultrastable Low-Noise Current Amplifiers of the Second Generation With a Cryogenic Current Comparator. *Gotz, M.*, +, *TIM June 2019* 2027-2033

Graphene Devices for Tabletop and High-Current Quantized Hall Resistance Standards. *Rigosi, A.F.*, +, *TIM June 2019 1870-1878* 

Interlaboratory Nanoamp Current Comparison With Subpart-Per-Million Uncertainty. *Giblin, S.P., +, TIM June 2019 1996-2002* 

#### **Current distribution**

Magnetic Source Imaging Using a Pulsed Optically Pumped Magnetometer Array. Borna, A., +, TIM Feb. 2019 493-501

Practical Current Distribution Measurement Systems for Lead Cells. *Harrison*, H.T., +, TIM Sept. 2019 3151-3165

### **Current measurement**

A Novel Method for Wide Range Electric Current Measurement in Gas-Insulated Switchgears With Shielded Magnetic Measurements. *Khawaja*, *A.H.*, +, *TIM Dec.* 2019 4712-4722

Guest Editors' Foreword Special Section on the 2018 IEEE International Workshop on Applied Measurements for Power Systems (AMPS 2018) Bologna, Italy, September 26–28, 2018. Ferrero, R., +, TIM Oct. 2019 3799-3800

### **Current transformers**

A High-Precision Current Transformer for Loss Measurements of EHV Shunt Reactors. So, E., +, TIM June 2019 1680-1687

A Low-Cost Generator for Testing and Calibrating Current Transformers. Cristaldi, L., +, TIM Aug. 2019 2792-2799

A New Vibration Testing Platform for Electronic Current Transformers. *Li*, *Z.*, +, *TIM March* 2019 704-712

A Novel Approach for the Error Correction of CT in the Presence of Harmonic Distortion. *Ballal, M.S.*, +, *TIM Oct. 2019 4015-4027* 

Compact Distributed Digitizers With Metrological Precision. *Houtzager, E.*, +, *TIM June 2019 1653-1658* 

Compensation of Current Transformers' Nonlinearities by Tensor Linearization. Collin, A.J., +, TIM Oct. 2019 3841-3849

Compensation of Nonlinearity of Voltage and Current Instrument Transformers. Cataliotti, A., +, TIM May 2019 1322-1332

Impact of Coreless Current Transformer Position on Current Measurement. Ma, X., +, TIM Oct. 2019 3801-3809

## **Curve fitting**

Distortion Characterization of Exponential Signal Reconstructed by Low-Chirp Signal. Carni, D.L., +, TIM April 2019 980-986

FPGA-Based Implementation of an Artificial Neural Network for Measurement Acceleration in BOTDA Sensors. *Abbasnezhad, M.*, +, *TIM Nov.* 2019 4326-4334

# CW radar

Blind Separation of Doppler Human Gesture Signals Based on Continuous-Wave Radar Sensors. Gu, Z., +, TIM July 2019 2659-2661

#### Cyclotron resonance

A Fluxgate-Based Approach for Ion Beam Current Measurement in ECRIS Beamline: Design and Preliminary Investigations. *Ando, B., +, TIM May* 2019 1477-1484

D

#### Dairy products

A Novel Two-Peak Analysis for Dielectric Spectroscopy. *Buehler, M.G., TIM July 2019 2539-2544* 

Development of a Novel Linear ERT Sensor to Measure Surface Deposits. Ren, Z., +, TIM March 2019 754-761

Hardware Platform to Detect Fat Percent in Milk Using a Lipase Immobilized PMMA-Coated Sensor. *Chakraborty, M.*, +, *TIM Nov. 2019 4526-4534* 

#### Data acquisition

3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications. S. B., P., +, TIM July 2019 2648-2655

A Fully Programmable White-Rabbit Node for the SKA Telescope PPS Distribution System. *Jimenez-Lopez, M.*, +, *TIM Feb. 2019 632-641* 

A Novel Approach for the Error Correction of CT in the Presence of Harmonic Distortion. *Ballal, M.S.*, +, *TIM Oct. 2019 4015-4027* 

Calibration and Characterization of a Magnetic Positioning System Using a Robotic Arm. Santoni, F., +, TIM May 2019 1494-1502

Characterization of a Nanometer Displacement Gauge for the Dimensional Control of Large Optomechanical Structures. *Donazzan*, A., +, *TIM April* 2019 1165-1177

Characterization of a Type-N Coaxial Microcalorimeter for Use as Microwave Power Standard at CENAM. *Botello-Perez, M.*, +, *TIM Feb. 2019* 558-565

Characterization of PXI-Based Generators for Impedance Measurement Setups. *Miroslaw, M.*, +, *TIM June 2019 1806-1813* 

Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan, Z.,* +, *TIM Feb. 2019 462-473* 

Identification of RF&MW Microcalorimeter Weak Points by Means of Uncertainty Analysis. *Oberto, L., TIM June 2019 1948-1954* 

Linearized Bregman Iterations for Automatic Optical Fiber Fault Analysis. *Lunglmayr*, M., +, TIM Oct. 2019 3699-3711

Off-the-Shelf Measurement Setup for Compressive Imaging. Ralasic, I., +, TIM Feb. 2019 502-511

Reference Ultralow DC Current Source Between 1 fA and 100 pA at TÜBİ-TAK UME. Erkan, O., +, TIM June 2019 2201-2207

Relative Wavelet Entropy Complex Network for Improving EEG-Based Fatigue Driving Classification. *Gao*, Z., +, *TIM July 2019 2491-2497* 

The Focal-Plane Detector Package on the TUNL Split-Pole Spectrograph. Marshall, C., +, TIM Feb. 2019 533-546

### Data analysis

A Robust Wrist Pulse Acquisition System Based on Multisensor Collaboration and Signal Quality Assessment. *Jiang*, Z., +, *TIM Dec. 2019 4807-4816* 

An Approach of Single-Crystal Defect Detection Using X-Ray Orientation Instrument. Guan, S., +, TIM Oct. 2019 4122-4134

Automatic Generation of Synthetic LiDAR Point Clouds for 3-D Data Analysis. Wang, F., +, TIM July 2019 2671-2673

CGAN-MBL for Reliability Assessment With Imbalanced Transmission Gear Data. Li, J., +, TIM Sept. 2019 3173-3183

Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. *Acharyya*, D., +, TIM Aug. 2019 3004-3011

Trip-Based Measures of Naturalistic Driving: Considerations and Connections With Cognitive Status in Older Adult Drivers. Howcroft, J., +, TIM July 2019 2451-2459

Using the Cloud to Improve Sensor Availability and Reliability in Remote Monitoring. Ooi, B.Y., +, TIM May 2019 1522-1532

### Data communication

Design of Multichannel and Multihop Low-Power Wide-Area Network for Aircraft Vibration Monitoring. *Gao*, S., +, *TIM Dec. 2019 4887-4895* 

### Data compression

A Movement-Tremors Recorder for Patients of Neurodegenerative Diseases. Gugliandolo, G., +, TIM May 2019 1451-1457

Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

#### **Data handling**

The Kalman Filter Uncertainty Concept in the Possibility Domain. *Ferrero*, A., +, *TIM Nov. 2019 4335-4347* 

#### Data loggers

Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. Aranzabal, N., +, TIM April 2019 1062-1070

# Data visualization

Special Section on Sensors Applications Symposium. *Gupta, G.S.*, +, *TIM July 2019 2333-2334* 

# DC motors

Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753

# **DC-DC** power converters

MLMVNNN for Parameter Fault Detection in PWM DC–DC Converters and Its Applications for Buck and Boost DC–DC Converters. *Luchetta*, A., +, TIM Feb. 2019 439-449

# Debye temperature

A Novel Two-Peak Analysis for Dielectric Spectroscopy. *Buehler, M.G., TIM July 2019 2539-2544* 

# Decision making

Calibration of Vision-Based Measurement of Pain Intensity With Multiple Expert Observers. Casti, P., +, TIM July 2019 2442-2450

Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372

Unattended Acoustic Sensor Systems For Source Detection, Classification, and Tracking. *Yaremenko, V.*, +, *TIM Feb. 2019 344-354* 

## Deconvolution

Effect of Step Response Measurement Arrangement on the Correction of Ultrahigh-Voltage Lightning Impulse Dividers. *Yan*, W., +, *TIM June 2019 1666-1670* 

# Deformation

Detection of HV Winding Radial Deformation and PD in Power Transformer Using Stepped-Frequency Hyperboloid Method. *Tabarsa, H.*, +, *TIM Aug.* 2019 2934-2942

## Delamination

Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks. Feng, B., +, TIM May 2019 1252-1260

### **Delay lines**

A 2.3-ps RMS Resolution Time-to-Digital Converter Implemented in a Low-Cost Cyclone V FPGA. Sui, T., +, TIM Oct. 2019 3647-3660

# Delays

Impact of Noise Bandwidth on Noise Figure. Sheldon, A., +, TIM July 2019 2662-2664

Scalable Wi-Fi Client Self-Positioning Using Cooperative FTM-Sensors. Banin, L., +, TIM Oct. 2019 3686-3698

# Delta-sigma modulation

An Optoelectronic Pulse Drive for Quantum Voltage Synthesizer. *Ireland, J.*, +, *TIM June 2019 2066-2071* 

# Demand side management

A Testing Framework for the Monitoring and Performance Analysis of Distributed Energy Systems. *Rinaldi, S.*, +, *TIM Oct. 2019 3831-3840* 

### Demodulation

Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753

Rail-to-Rail Timer-Based Demodulator for AM Sensor Signals. *Reverter, F., TIM Jan. 2019 306-308* 

Synchronous Adaptive Resolver-to-Digital Converter for FPGA-Based High-Performance Control Loops. *Sabatini*, V., +, *TIM Oct.* 2019 3972-3982

Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019 2819-2829* 

#### **Demodulators**

Rail-to-Rail Timer-Based Demodulator for AM Sensor Signals. *Reverter, F., TIM Jan. 2019 306-308* 

Ultralow-Power Synchronous Demodulation for Low-Level Sensor Signal Detection. *Maya-Hernandez, P.M.*, +, *TIM Oct. 2019 3514-3523* 

#### Design engineering

Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou, X.*, +, *TIM Nov. 2019 4253-4267* 

Improving a Commodity Dust Sensor to Enable Particle Size Analysis. *Pedersini*, F., TIM Jan. 2019 177-188

## Design of experiments

Design of Experiments to Compare Base Station Antenna Configurations. Caban, S., +, TIM Oct. 2019 3484-3493

#### Detectors

3-D Computational Ghost Imaging With Extended Depth of Field for Measurement. Yang, Z., +, TIM Dec. 2019 4906-4912

#### Diameter measurement

Volume Measurement of a <sup>28</sup>Si-Enriched Sphere for a Determination of the Avogadro Constant at NMIJ. *Kuramoto*, *N.*, +, *TIM June 2019 1913-1920* 

#### Dielectric constant

Measurement of Complex Dielectric Constant Using Optical Method. Sengupta, R., +, TIM June 2019 1814-1820

#### Dielectric liquids

Concentration Measurement of Microliter-Volume Water-Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

#### Dielectric loss measurement

Towards Accurate and Wideband *In Vivo* Measurement of Skin Dielectric Properties. *Gao*, Y., +, *TIM Feb. 2019 512-524* 

#### Dielectric losses

A Novel Two-Peak Analysis for Dielectric Spectroscopy. Buehler, M.G., TIM July 2019 2539-2544

Effects of Mechanical Pressure on the Tangent Delta of MV Cable Joints. Ghaderi, A., +, TIM July 2019 2656-2658

Establishment of High-Voltage AC–DC Voltage Transfer Standards in 1–100-kHz Range at NMIJ. *Fujiki*, *H.*, +, *TIM June 2019 1921-1926* 

### Dielectric materials

Coaxial Probe for Dielectric Measurements of Aerated Pulverized Materials. Neumayer, M., +, TIM May 2019 1402-1411

Partially Filled Substrate Integrated Waveguide-Based Microwave Technique for Broadband Dielectric Characterization. *Tiwari, N.K.*, +, *TIM Aug. 2019 2907-2915* 

Towards Accurate and Wideband *In Vivo* Measurement of Skin Dielectric Properties. *Gao*, Y., +, *TIM Feb*. 2019 512-524

# Dielectric measurement

Coaxial Probe for Dielectric Measurements of Aerated Pulverized Materials. Neumayer, M., +, TIM May 2019 1402-1411

Improvement of Broadband Characterization of Dielectric Waveguide at the Ka-Band by Using TRL Calibration Method. Kato, Y., +, TIM June 2019 1788-1795

### Dielectric properties

Concentration Measurement of Microliter-Volume Water–Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

### Dielectric relaxation

A Novel Two-Peak Analysis for Dielectric Spectroscopy. *Buehler, M.G., TIM July 2019 2539-2544* 

# Dielectric waveguides

Improvement of Broadband Characterization of Dielectric Waveguide at the *Ka*-Band by Using TRL Calibration Method. *Kato, Y.*, +, *TIM June 2019* 1788-1795

# Dielectrics

Wideband Dielectric Characterization of 3-D Printable Triethylene Glycol Dimethacrylate Ester Plastic. *Sharma, K.*, +, *TIM Nov. 2019 4419-4426* 

# Diesel engines

Intelligent Diagnosis of V-Type Marine Diesel Engines Based on Multifeatures Extracted From Instantaneous Crankshaft Speed. Zhang, M., +, TIM March 2019 722-740

#### Difference equations

Sensitivity and Resolution Enhancement of Coupled-Core Fluxgate Magnetometer by Negative Feedback. Li, J., +, TIM Feb. 2019 623-631

# Differential transformers

Design and Analysis of a Relaxation Oscillator-Based Interface Circuit for LVDT. Ganesan, H., +, TIM May 2019 1261-1270

Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088

# **Diffraction gratings**

Pseudohigh-Resolution Spectral Interrogation Scheme for Small Signals From FBG Sensors. *Lim, K.*, +, *TIM Aug. 2019 2964-2970* 

# Diffractive optical elements

A Hyperspectral Imaging Instrumentation Architecture Based on Accessible Optical Disc Technology and Frequency-Domain Analyses. *Brodie, C.H.*, +, *TIM July 2019 2531-2538* 

# Digital communication

A New Vibration Testing Platform for Electronic Current Transformers. *Li*, *Z*., +, *TIM March* 2019 704-712

#### Digital control

Errors of Multiplying D/A Converters Used for Precise AC Voltage Division. Rybski, R., +, TIM June 2019 1821-1826

### Digital signal processing

FPGA-Based Implementation of an Artificial Neural Network for Measurement Acceleration in BOTDA Sensors. *Abbasnezhad, M.*, +, *TIM Nov.* 2019 4326-4334

# Digital-analog conversion

A Precision, Energy-Efficient, Oversampling, Noise-Shaping Differential SAR Capacitance-to-Digital Converter. *Alhoshany, A.*, +, *TIM Feb. 2019* 392-401

Errors of Multiplying D/A Converters Used for Precise AC Voltage Division.

Rvbski, R., +, TIM June 2019 1821-1826

#### Dip coating

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

# **Direction-of-arrival estimation**

Unattended Acoustic Sensor Systems For Source Detection, Classification, and Tracking. *Yaremenko, V.*, +, *TIM Feb. 2019 344-354* 

Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform. *Cortes-Osorio, J.A.*, +, *TIM Oct. 2019 4038-4050* 

# Disasters

Design of Magnetic Resonance Sounding Antenna and Matching Circuit for the Risk Detection of Tunnel Water-Induced Disasters. *Yi*, *X.*, +, *TIM Dec.* 2019 4945-4953

# Discrete cosine transforms

Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform. *Cortes-Osorio, J.A.*, +, *TIM Oct. 2019 4038-4050* 

### **Discrete Fourier transforms**

An Interharmonic Phasor and Frequency Estimator for Subsynchronous Oscillation Identification and Monitoring. *Chen, L., +, TIM June 2019 1714-1723* 

Estimation of the Power Quantities Below One Signal Period Using DFT Coefficients. Strenfelj, J., +, TIM June 2019 1696-1704

Frequency Estimation Based on Moving-Window DFT With Fractional Bin-Index for Capacitance Measurement. *Tyagi*, *T.*, +, *TIM July 2019* 2560-2569

New Measurement Algorithm for Supraharmonics Based on Multiple Measurement Vectors Model and Orthogonal Matching Pursuit. *Zhuang*, S., +, *TIM June 2019 1671-1679* 

Reduced Leakage Synchrophasor Estimation: Hilbert Transform Plus Interpolated DFT. Frigo, G., +, TIM Oct. 2019 3468-3483

Simultaneous Estimation of Moving-Vibration Parameters by Sliding Goertzel Algorithm in PLL Technique. Singh, K.M., TIM Feb. 2019 334-343

Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform. Cortes-Osorio, J.A., +, TIM Oct. 2019 4038-4050

# Discrete wavelet transforms

Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061

Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

#### **Diseases**

- A Movement-Tremors Recorder for Patients of Neurodegenerative Diseases. Gugliandolo, G., +, TIM May 2019 1451-1457
- A Robust Wrist Pulse Acquisition System Based on Multisensor Collaboration and Signal Quality Assessment. *Jiang, Z.*, +, *TIM Dec. 2019 4807-4816*
- Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli, A.*, +, *TIM July 2019 2433-2441*
- Gait Nonlinear Patterns Related to Parkinson's Disease and Age. *Lahmiri*, S., TIM July 2019 2545-2551
- Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. *Yin, M.*, +, *TIM Jan.* 2019 49-64
- The Influence of Uncertainty Contributions on Deep Learning Architectures in Vision-Based Evaluation Systems. *Callari, G., +, TIM July 2019 2425-2432*
- Wearable Inverse Light-Emitting Diode Sensor for Measuring Light Intensity at Specific Wavelengths in Light Therapy. *Tsai*, *H*., +, *TIM May 2019* 1561-1574

#### Disk drives

An Enhanced Trace Ratio Linear Discriminant Analysis for Fault Diagnosis: An Illustrated Example Using HDD Data. *Yang, A.*, +, *TIM Dec. 2019* 4629-4639

# Displacement measurement

- A Parasitic Displacement Measurement System for Suspended Coil in Joule Balance. *Bai*, Y., +, *TIM June 2019 2237-2245*
- Characterization of a Nanometer Displacement Gauge for the Dimensional Control of Large Optomechanical Structures. *Donazzan*, A., +, *TIM April* 2019 1165-1177
- Closed-Loop Optimization of DIC Speckle Patterns Based on Simulated Experiments. *Lavatelli*, A., +, *TIM Nov. 2019 4376-4386*
- Measurement of the Absolute Phase Error of Digitizers. Crotti, G., +, TIM June 2019 1724-1731
- Optimization Procedure for the Determination of Faraday's Voltage in UME Kibble Balance (July 2018). Ahmedov, H., +, TIM June 2019 2172-2175
- Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088
- Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. Zhao, J., +, TIM Sept. 2019 3268-3277
- Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors. Reda, K., +, TIM May 2019 1467-1476

# Distance measurement

- A Dual-Interferometer-Based Angular Measurement System With Absolute Angle Recovery Method. *Serrano Galvez, P., +, TIM March 2019 864-873* An Indoor Ultrasonic System for Autonomous 3-D Positioning. *Carotenuto,*
- R., +, TIM July 2019 2507-2518
  Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light. Dashpute, A., +, TIM Jan. 2019 160-168
- Informational Framework for Minimalistic Visual Odometry on Outdoor Robot. *Al Hage, J.*, +, *TIM Aug. 2019 2988-2995*
- Reducing RF Distance Error by Characterizing Multipath. Whitney, A.M., +, TIM Sept. 2019 3329-3338
- The Status of PTB's Nanonewton Force Facility. Nesterov, V., +, TIM June 2019 1982-1989
- Ultrasonic Distance Measurement Method With Crosstalk Rejection at High Measurement Rate. Shin, S., +, TIM April 2019 972-979
- Uncertainty Assessment of Optical Distance Measurements at Micrometer Level Accuracy for Long-Range Applications. *Guillory, J.*, +, *TIM June* 2019 2260-2267

# **Distillation equipment**

State Estimation of Slow-Rate Integrated Measurement Systems in the Presence of Parametric Uncertainties. Salehi, Y., +, TIM Oct. 2019 3983-3991

# Distortion

Distortion Characterization of Exponential Signal Reconstructed by Low-Chirp Signal. Carni, D.L., +, TIM April 2019 980-986

- Effective and Efficient Blind Quality Evaluator for Contrast Distorted Images. Yue, G., +, TIM Aug. 2019 2733-2741
- Off-the-Shelf Measurement Setup for Compressive Imaging. Ralasic, I., +, TIM Feb. 2019 502-511

#### Distributed power generation

- A Testing Framework for the Monitoring and Performance Analysis of Distributed Energy Systems. *Rinaldi*, S., +, *TIM Oct.* 2019 3831-3840
- Decentralized Load Estimation for Distribution Systems Using Artificial Neural Networks. *Chen, Y., +, TIM May 2019 1333-1342*
- Uncertainty Analysis in Time Distribution Mechanisms for OMS Smart Meters: The Last-Mile Time Synchronization Issue. *Rinaldi, S.*, +, *TIM March 2019 693-703*

# Distributed sensors

Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. *Mayer, P., +, TIM July 2019 2346-2355* 

# Distribution networks

- An Improved Load Flow Method for MV Networks Based on LV Load Measurements and Estimations. Cataliotti, A., +, TIM Feb. 2019 430-438
- Compensation of Systematic Measurement Errors in a PMU-Based Monitoring System for Electric Distribution Grids. *Pegoraro, P.A.*, +, *TIM Oct.* 2019 3871-3882
- Decentralized Load Estimation for Distribution Systems Using Artificial Neural Networks. *Chen, Y., +, TIM May 2019 1333-1342*
- Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure. Pau, M., +, TIM Nov. 2019 4300-4312
- Effects of Mechanical Pressure on the Tangent Delta of MV Cable Joints. Ghaderi, A., +, TIM July 2019 2656-2658
- Estimation of the Power Quantities Below One Signal Period Using DFT Coefficients. Stremfelj, J., +, TIM June 2019 1696-1704
- Identification and Estimation of Harmonic Sources Based on Compressive Sensing. Carta, D., +, TIM Jan. 2019 95-104
- Impact of Current and Power Measurements on Distribution System State Estimation Uncertainty. *Pau, M.*, +, *TIM Oct. 2019 3992-4002*
- Line Impedance Estimation Based on Synchrophasor Measurements for Power Distribution Systems. *Pegoraro*, P.A., +, TIM April 2019 1002-1013

## **Dividing circuits**

An Improved Match Method of Capacitive Divider for Measurement of Nanosecond-Range HV Pulses. Yu, B., +, TIM Oct. 2019 4146-4151

# Doppler effect

Doppler Distortion Removal in Wayside Circular Microphone Array Signals. Ouyang, K., +, TIM May 2019 1238-1251

### Doppler measurement

- An Extended Kalman Filter for Fetal Heart Location Estimation During Doppler-Based Heart Rate Monitoring. *Hamelmann*, P., +, TIM Sept. 2019 3221-3231
- Filtering for Drift Data of a Laser Doppler Velocimeter Based on Metabolic Time-Series–Grey Model. Wang, Q., +, TIM July 2019 2552-2559

# Doppler radar

- Blind Separation of Doppler Human Gesture Signals Based on Continuous-Wave Radar Sensors. Gu, Z., +, TIM July 2019 2659-2661
- Evaluation of Experimental GNSS and 10-DOF MEMS IMU Measurements for Train Positioning. *Otegui*, *J.*, +, *TIM Jan. 2019 269-279*

## **Drilling (geotechnical)**

Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *Aranzabal*, *N.*, +, *TIM April 2019 1062-1070* 

### **Driver circuits**

An Optoelectronic Pulse Drive for Quantum Voltage Synthesizer. *Ireland*, *J.*, +, *TIM June 2019 2066-2071* 

# **Driver information systems**

Trip-Based Measures of Naturalistic Driving: Considerations and Connections With Cognitive Status in Older Adult Drivers. *Howcroft, J.*, +, *TIM July 2019 2451-2459* 

# **Drops**

- Field Study of LWC and MVD Using the Droplet Imaging Instrument. Rydblom, S., +, TIM Feb. 2019 614-622
- Measurement of Oil-Water Interface Characteristics in Horizontal Pipe Using a Conductance Parallel-Wire Array Probe. *Zhai, L.*, +, *TIM Sept.* 2019 3232-3243

#### Dust

Improving a Commodity Dust Sensor to Enable Particle Size Analysis. Pedersini, F., TIM Jan. 2019 177-188

Vision-Based Measurement of Dust Concentration by Image Transmission. Li, G., +, TIM Oct. 2019 3942-3949

#### **Dynamometers**

Thermal Force Uncertainty of Piezoelectric Dynamometer. Zhang, J., +, TIM  $Dec.\ 2019\ 4723-4735$ 

 $\mathbf{E}$ 

#### **Eddy current testing**

Comparison Study of Different Features for Pocket Length Quantification of Angular Defects Using Eddy Current Pulsed Thermography. *Zhu*, *J*., +, *TIM May 2019 1373-1381* 

Eddy Current Testing Probe Based on Double-Coil Excitation and GMR Sensor. *Bernieri*, A., +, *TIM May 2019 1533-1542* 

#### **Eddy currents**

Thickness and Conductivity Measurement of Multilayered Electricity-Conducting Coating by Pulsed Eddy Current Technique: Experimental Investigation. Wang, Z., +, TIM Sept. 2019 3166-3172

# **Edge detection**

Exposure Measurement and Fusion via Adaptive Multiscale Edge-Preserving Smoothing. Que, Y., +, TIM Dec. 2019 4663-4674

#### Eigenvalues and eigenfunctions

Amplitude Estimation and Source Separation for Harmonics Within Two Mixtures Based on a Min-Rank Criterion. *Yang, Y., +, TIM Dec. 2019* 4618-4628

Noise Power Estimators in ISM Radio Environments: Performance Comparison and Enhancement Using a Novel Samples Separation Technique. *Nikonowicz, J., +, TIM Jan. 2019 105-115* 

Partial Discharge Localization in Insulated Switchgears by Eigenfunction Expansion Method. D'Antona, G., +, TIM May 2019 1294-1301

# Elasticity

Design of a Novel Elastic Torque Sensor for Hand Injuries Rehabilitation Based on Bowden Cable. *Zhang, F.*, +, *TIM Sept. 2019 3184-3192* 

### Electric breakdown

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana*, M., +, TIM Dec. 2019 4853-4863

# **Electric connectors**

AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K. Kucera, J., +, TIM June 2019 2106-2112

Low-Cost Online Contact Resistance Measurement of Power Connectors to Ease Predictive Maintenance. *Kadechkar, A., +, TIM Dec. 2019 4825-4833* 

# Electric current measurement

A Fluxgate-Based Approach for Ion Beam Current Measurement in ECRIS Beamline: Design and Preliminary Investigations. *Ando, B.*, +, *TIM May* 2019 1477-1484

A Low-Cost Generator for Testing and Calibrating Current Transformers. Cristaldi, L., +, TIM Aug. 2019 2792-2799

A New Hybrid State Estimation Considering Different Accuracy Levels of PMU and SCADA Measurements. *Kabiri, M.*, +, *TIM Sept. 2019 3078-3089* 

A Novel Approach for the Error Correction of CT in the Presence of Harmonic Distortion. *Ballal, M.S.*, +, *TIM Oct. 2019 4015-4027* 

A Pigeonhole Principle-Based Method for Estimating the Resonant Frequency of SAWR Sensors. *Khoshakhlagh, M.*, +, *TIM Nov. 2019 4502-4509* 

AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K. *Kucera*, J., +, *TIM June 2019 2106-2112* 

AC Voltage Measurements to 120 V With a Josephson Arbitrary Waveform Synthesizer and an Inductive Voltage Divider. *Georgakopoulos*, D., +, TIM June 2019 1935-1940

Analysis of Correlation in the Intercomparison of DC Voltage Reference Standards. Sachica, M., +, TIM June 2019 2168-2171

Behavior Modeling of the Amplifier Nonlinearity With the AC Josephson Voltage Standard. Zhou, K., +, TIM June 2019 1990-1995

Calibration of Voltage and Current Transducers for DC Railway Systems. Crotti, G., +, TIM Oct. 2019 3850-3860

Characterization of DC Current Sensors With AC Distortion for Railway Applications. van den Brom, H.E., +, TIM June 2019 2084-2090

Compensation of Systematic Measurement Errors in a PMU-Based Monitoring System for Electric Distribution Grids. *Pegoraro, P.A.*, +, *TIM Oct.* 2019 3871-3882

Determination of AC–DC Transfer Difference of Calculable Thermal Voltage Converters in 1–30-MHz Frequency Range. *Grzenik, M.*, +, *TIM June* 2019 2072-2077

Development of a Nonintrusive True-RMS AC Voltage Measurement Probe. Shenil, P.S., +, TIM Oct. 2019 3899-3906

Eddy Current Testing Probe Based on Double-Coil Excitation and GMR Sensor. Bernieri, A., +, TIM May 2019 1533-1542

Fault Detection of VLSI Power Supply Network Based on Current Estimation From Surface Magnetic Field. Takahashi, D., +, TIM July 2019 2519-2530

Harmonic Power Standard of VTT MIKES. Lehtonen, T.A., TIM June 2019 2047-2052

Impact of Coreless Current Transformer Position on Current Measurement. Ma, X., +, TIM Oct. 2019 3801-3809

Improved Sine-Fitting Algorithms for Measurements of Complex Ratio of AC Voltages by Asynchronous Sequential Sampling. Augustyn, J., +, TIM June 2019 1659-1665

Interlaboratory Nanoamp Current Comparison With Subpart-Per-Million Uncertainty. Giblin, S.P., +, TIM June 2019 1996-2002

Method for the Absolute Calibration of Direct-Current Current Transducers. Zhao, J., +, TIM June 2019 1961-1966

Novel Broadband Calibration Method of Current Shunts Based on VNA. Ouameur, M., +, TIM March 2019 854-863

Pantograph-to-OHL Arc: Conducted Effects in DC Railway Supply System. Crotti, G., +, TIM Oct. 2019 3861-3870

Practical Current Distribution Measurement Systems for Lead Cells. *Harrison, H.T.*, +, *TIM Sept. 2019 3151-3165* 

Realization of Absolute Phase and AC Resistance of Current Shunts by Ratio Measurements. *Bergsten, T., +, TIM June 2019 2041-2046* 

Toward a Calculable Standard Shunt for Current Measurements at 10 A and Up To 1 MHz. *Ouameur, M.*, +, *TIM June 2019 2215-2222* 

Uncertainty Bounds of Transmission Line Parameters Estimated From Synchronized Measurements. Asprou, M., +, TIM Aug. 2019 2808-2818

Using High-Precision Multimeter Digitizer for High Short-Circuit Current Calibration. *Roccato, P.E.*, +, *TIM June 2019 2100-2105* 

# Electric field effects

Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures. *Foudazi*, A., +, *TIM Feb. 2019 576-585* 

# Electric field measurement

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. Urbonas, J., +, TIM Aug. 2019 2971-2978

Electromagnetic Metrology for Nano- Electromechanical Systems. *Hao, L.*, +, *TIM June 2019 1827-1832* 

Improved-Sensitivity Resonant Electric-Field Probes Based on Planar Spiral Stripline and Rectangular Plate Structure. Wang, J., +, TIM March 2019 882-894

Kerr Electro-Optic Sensor for Electric Field in Large-Scale Oil–Pressboard Insulation Structure. *Gao*, C., +, *TIM Oct. 2019 3626-3634* 

Measurement of Distorted Power-Frequency Electric Field With Integrated Optical Sensor. *Li*, *Z*, +, *TIM April 2019 1132-1139* 

# Electric fields

A High-Frequency and High Spatial Resolution Probe Design for EMI Prediction. *Yang, R.*, +, *TIM Aug. 2019 3012-3019* 

# **Electric impedance imaging**

A Robust Inclusion Boundary Reconstructor for Electrical Impedance Tomography With Geometric Constraints. *Ren, S.*, +, *TIM March 2019* 762-773

Direct Image Reconstruction for Electrical Capacitance Tomography Using Shortcut D-Bar Method. Zhao, J., +, TIM Feb. 2019 483-492

Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan, Z.*, +, *TIM Feb. 2019 462-473* 

The ACE1 Electrical Impedance Tomography System for Thoracic Imaging. Mellenthin, M.M., +, TIM Sept. 2019 3137-3150

# Electric impedance measurement

Accurate Technique for Electrical Permittivity Measurement of Biological Tissue Specimens at Low Frequencies. *Hesabgar, S.M.*, +, *TIM July 2019 2479-2490* 

Characterization of PXI-Based Generators for Impedance Measurement Setups. Miroslaw, M., +, TIM June 2019 1806-1813

Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019* 215-224

Establishing a New Form of Primary Impedance Standard at Millimeter-Wave Frequencies. Azeez, Y.F., +, TIM Jan. 2019 294-296

Four-Terminal Pair Digital Sampling Impedance Bridge up to 1MHz. Maslan, S., +, TIM June 2019 1860-1869

Low Frequency Model-Based Identification of Soft Impedance Faults in Cables. Cozza, A., TIM Oct. 2019 3524-3535

Modeling and Validation of Fixture-Induced Error for Impedance Measurements. Nelson, B.W., +, TIM Jan. 2019 129-137

On the Suitability of Low-Cost Compact Instrumentation for Blood Impedance Measurements. *Addabbo*, T., +, TIM July 2019 2412-2424

Realization of Absolute Phase and AC Resistance of Current Shunts by Ratio Measurements. *Bergsten, T., +, TIM June 2019 2041-2046* 

Time-Variant In-Circuit Impedance Monitoring Based on the Inductive Coupling Method. Zhao, Z., +, TIM Jan. 2019 169-176

# Electric locomotives

Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. *Wang, H.*, +, *TIM Oct. 2019 3536-3547* Pantograph-to-OHL Arc: Conducted Effects in DC Railway Supply System. *Crotti, G.*, +, *TIM Oct. 2019 3861-3870* 

# Electric machine analysis computing

Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning. Kao, I., +, TIM Feb. 2019 310-324

# **Electric machines**

Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753

Tacholess Speed Estimation in Order Tracking: A Review With Application to Rotating Machine Fault Diagnosis. *Lu*, *S.*, +, *TIM July 2019 2315-2332* Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors. *Reda*, *K.*, +, *TIM May 2019 1467-1476* 

Warped Variational Mode Decomposition With Application to Vibration Signals of Varying-Speed Rotating Machineries. *Chen, S., +, TIM Aug. 2019* 2755-2767

### Electric noise measurement

A Measurement of Noise Wave Correlation Matrix Using Noise Power Ratios. Lee, D., +, TIM July 2019 2579-2593

Peculiarities of Hardware for Electrochemical Noise Measurement in Chemical Power Sources. Astafev, E., +, TIM Nov. 2019 4412-4418

## Electric resistance measurement

AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K. Kucera, J., +, TIM June 2019 2106-2112

An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836

Characterization of 1 kW Metal-Foil Standard Resistors and Continuing Drift-Rate Evaluation of 1  $\Omega$  and 10  $\Omega$  Standard Resistors. Abe, T., +, TIM June 2019 2078-2083

Gas-Liquid Flow Pattern Analysis Based on Graph Connectivity and Graph-Variate Dynamic Connectivity of ERT. *Tan, C.*, +, *TIM May 2019* 1590-1601

Graphene Devices for Tabletop and High-Current Quantized Hall Resistance Standards. Rigosi, A.F., +, TIM June 2019 1870-1878

Intelligent Failure Diagnosis for Gas Circuit Breakers Based on Dynamic Resistance Measurements. *Abdollah, M.*, +, *TIM Sept. 2019 3066-3077* 

Realization of Absolute Phase and AC Resistance of Current Shunts by Ratio Measurements. Bergsten, T., +, TIM June 2019 2041-2046

Self-Calibration and Verification of Phase Angle Errors of Two Voltage Dividers at High Frequencies. Shi, Z., +, TIM June 2019 2053-2059

Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges. *Kim, D.B.,* +, *TIM June 2019 1941-1947* 

### **Electric sensing devices**

A Linear Direct-Digital Converter for Sinusoidal Encoders. *Bhaskarrao*, N.K., +, TIM July 2019 2570-2578

A New Contactless Bubble/Slug Velocity Measurement Method of Gas—Liquid Two-Phase Flow in Small Channels. *Huang, J.*, +, *TIM Sept. 2019* 3253-3267

Calibration of Voltage and Current Transducers for DC Railway Systems. Crotti, G., +, TIM Oct. 2019 3850-3860

Characterization of DC Current Sensors With AC Distortion for Railway Applications. van den Brom, H.E., +, TIM June 2019 2084-2090

Indoor Occupancy Awareness and Localization Using Passive Electric Field Sensing. *Tang, X.*, +, *TIM Nov. 2019 4535-4549* 

Kerr Electro-Optic Sensor for Electric Field in Large-Scale Oil–Pressboard Insulation Structure. *Gao, C.*, +, *TIM Oct. 2019 3626-3634* 

Measurement System Based on Electrostatic Sensors to Detect Moving Charged Debris With Planar-Isotropic Accuracy. *Addabbo*, *T.*, +, *TIM March* 2019 837-844

Novel Broadband Calibration Method of Current Shunts Based on VNA.

Ouameur, M., +, TIM March 2019 854-863

Using High-Precision Multimeter Digitizer for High Short-Circuit Current Calibration. *Roccato, P.E.*, +, *TIM June 2019 2100-2105* 

Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors. *Reda, K.*, +, *TIM May 2019 1467-1476* 

# **Electrical conductivity**

Thickness and Conductivity Measurement of Multilayered Electricity-Conducting Coating by Pulsed Eddy Current Technique: Experimental Investigation. Wang, Z., +, TIM Sept. 2019 3166-3172

# Electrical conductivity measurement

A Capacitive-Coupled Noncontact Probe for the Measurement of Conductivity of Liquids. *Tejaswini, K.K.*, +, *TIM May 2019 1602-1610* 

A New Contactless Bubble/Slug Velocity Measurement Method of Gas—Liquid Two-Phase Flow in Small Channels. *Huang, J.*, +, *TIM Sept. 2019* 3253-3267

Thickness and Conductivity Measurement of Multilayered Electricity-Conducting Coating by Pulsed Eddy Current Technique: Experimental Investigation. Wang, Z., +, TIM Sept. 2019 3166-3172

# **Electrical contacts**

Intelligent Failure Diagnosis for Gas Circuit Breakers Based on Dynamic Resistance Measurements. *Abdollah, M.*, +, *TIM Sept. 2019 3066-3077* 

# **Electrical engineering computing**

An Approach on MCSA-Based Fault Detection Using Independent Component Analysis and Neural Networks. *Garcia-Bracamonte, J.E.*, +, *TIM May 2019 1353-1361* 

# Electrical impedance tomography

Noninvasive Acoustoelectric Imaging of Resistivity Distribution Based on Lead Field Theory. *Song, X.*, +, *TIM Dec. 2019 4779-4786* 

## **Electrical resistivity**

Development of a Novel Linear ERT Sensor to Measure Surface Deposits. Ren, Z., +, TIM March 2019 754-761

Gas-Liquid Flow Pattern Analysis Based on Graph Connectivity and Graph-Variate Dynamic Connectivity of ERT. *Tan, C.*, +, *TIM May 2019* 1590-1601

# **Electrical safety**

Design and Evaluation of a USB Isolator for Medical Instrumentation. Gonzalez-Briceno, G., +, TIM March 2019 797-806

# Electro-optical devices

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. Urbonas, J., +, TIM Aug. 2019 2971-2978

# **Electro-optical effects**

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. *Urbonas, J.*, +, *TIM Aug. 2019 2971-2978* 

### Electroactive polymer actuators

Low-order Nonlinear Finite-Impulse Response Soft Sensors for Ionic Electroactive Actuators Based on Deep Learning. *Ando, B., +, TIM May 2019 1637-1646* 

#### Electrocardiography

A Measurement System to Estimate the Pleural Pressure From the CVP for Respiratory System Monitoring. *Addabbo*, T., +, TIM July 2019 2469-2478

Characterization of S<sub>1</sub> and S<sub>2</sub> Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, M., +, TIM Sept. 2019 3211-3220

Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli, A.*, +, *TIM July 2019 2433-2441* 

Motion-Artifact Reduction in Capacitive Heart-Rate Measurements by Adaptive Filtering. Xu, L., +, TIM Oct. 2019 4085-4093

# **Electrochemical devices**

A Current-Driven Six-Channel Potentiostat for Rapid Performance Characterization of Microbial Electrolysis Cells. *Molderez*, *T.R.*, +, *TIM Dec.* 2019 4694-4702

#### **Electrochemical electrodes**

Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang*, *J.*, +, *TIM July 2019* 2387-2393

# Electrochemical impedance spectroscopy

On the Suitability of Low-Cost Compact Instrumentation for Blood Impedance Measurements. *Addabbo*, T., +, TIM July 2019 2412-2424

#### **Electrochemical sensors**

Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang, J.*, +, *TIM July 2019* 2387-2393

Peculiarities of Hardware for Electrochemical Noise Measurement in Chemical Power Sources. Astafev, E., +, TIM Nov. 2019 4412-4418

#### **Electrodes**

3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications. S. B., P., +, TIM July 2019 2648-2655

Determination of Voltage Dependence in High-Voltage Standard Capacitors. Slomovitz, D., +, TIM June 2019 2136-2143

Development of a Nonintrusive True-RMS AC Voltage Measurement Probe. Shenil, P.S., +, TIM Oct. 2019 3899-3906

Direct Image Reconstruction for Electrical Capacitance Tomography Using Shortcut D-Bar Method. *Zhao, J.*, +, *TIM Feb. 2019 483-492* 

Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan, Z.*, +, *TIM Feb. 2019 462-473* 

Gas-Liquid Flow Pattern Analysis Based on Graph Connectivity and Graph-Variate Dynamic Connectivity of ERT. *Tan, C.*, +, *TIM May 2019* 1590-1601

Nonlinearity of the NIST Calculable Capacitor. Wang, Y., +, TIM June 2019

Practical Application of Latest Optimal Hollow Active Auxiliary Electrode in Vertical Calculable Cross-Capacitor at NIM. *Huang, L.*, +, *TIM June* 2019 2144-2150

## Electroencephalography

A Single-Channel SSVEP-Based Instrument With Off-the-Shelf Components for Trainingless Brain-Computer Interfaces. *Angrisani*, L., +, TIM Oct. 2019 3616-3625

Accurate Classification of Seizure and Seizure-Free Intervals of Intracranial EEG Signals From Epileptic Patients. *Lahmiri*, S., +, TIM March 2019 791-796

Detection of Spikes With Defined Parameters in the ECoG Signal. *Kolodziej,* M., +, TIM April 2019 1045-1052

Pilots' Fatigue Status Recognition Using Deep Contractive Autoencoder Network. Wu, E.Q., +, TIM Oct. 2019 3907-3919

Relative Wavelet Entropy Complex Network for Improving EEG-Based Fatigue Driving Classification. *Gao*, *Z*., +, *TIM July 2019 2491-2497* 

# Electroluminescence

Classification of Manufacturing Defects in Multicrystalline Solar Cells With Novel Feature Descriptor. Su, B., +, TIM Dec. 2019 4675-4688

#### **Electromagnetic actuators**

Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient. *Zhang, X.*, +, *TIM March 2019 680-687* 

# **Electromagnetic devices**

Dynamic Offset Correction of Electromagnetic Flowmeters. *Linnert, M.A.*, +, *TIM May 2019 1284-1293* 

# Electromagnetic fields

Design of Cable Parallel Air-Core Coil Sensor to Reduce Motion-Induced Noise in Helicopter Transient Electromagnetic System. *Liu, F., +, TIM Feb.* 2019 525-532

Impulse Exciter of Rotating Blades With an Increased Excitation Force. *Prochazka, P., TIM Jan. 2019 300-302* 

#### **Electromagnetic forces**

Impulse Exciter of Rotating Blades With an Increased Excitation Force. Prochazka, P., TIM Jan. 2019 300-302

# **Electromagnetic induction**

3-D Hemorrhage Imaging by Cambered Magnetic Induction Tomography. *Xiao*, Z., +, *TIM July 2019 2460-2468* 

Design of Cable Parallel Air-Core Coil Sensor to Reduce Motion-Induced Noise in Helicopter Transient Electromagnetic System. *Liu, F., +, TIM Feb.* 2019 525-532

Magnetic-Field Measurement Based on Multicore Fiber Taper and Magnetic Fluid. *Yue, C.*, +, *TIM March 2019 688-692* 

#### Electromagnetic interference

A High-Frequency and High Spatial Resolution Probe Design for EMI Prediction. *Yang, R.*, +, *TIM Aug. 2019 3012-3019* 

Fiber Bragg Grating-Based Oil-Film Pressure Measurement in Journal Bearings. Mu, B., +, TIM May 2019 1575-1581

Magnetic-Field Measurement Based on Multicore Fiber Taper and Magnetic Fluid. *Yue*, C., +, *TIM March 2019 688-692* 

New Measurement Algorithm for Supraharmonics Based on Multiple Measurement Vectors Model and Orthogonal Matching Pursuit. *Zhuang, S.*, +, *TIM June 2019 1671-1679* 

Time-Variant In-Circuit Impedance Monitoring Based on the Inductive Coupling Method. Zhao, Z., +, TIM Jan. 2019 169-176

## Electromagnetic measurements

Conference on Precision Electromagnetic Measurements (CPEM 2018). Allal, D., +, TIM June 2019 1652

# Electromagnetic shielding

An Improved Match Method of Capacitive Divider for Measurement of Nanosecond-Range HV Pulses. Yu, B., +, TIM Oct. 2019 4146-4151

## Electromagnetic wave attenuation

An Improved Match Method of Capacitive Divider for Measurement of Nanosecond-Range HV Pulses. Yu, B., +, TIM Oct. 2019 4146-4151

# Electromagnetic wave propagation

Partial Discharge Localization in Insulated Switchgears by Eigenfunction Expansion Method. D'Antona, G., +, TIM May 2019 1294-1301

# Electromagnetic wave reflection

Effect of Instrument Frequency Uncertainty on Wideband Microwave Synthetic Aperture Radar Images. *Horst, M.J.*, +, *TIM Jan. 2019 151-159* 

Uncertainty Analysis of Far-Field Gain Measurement of DRGH Using the Single-Antenna Method and Amplitude Center Distance. *Matsukawa, S.*, +, *TIM June 2019 1756-1764* 

### Electromagnetic wave scattering

A Near-Field to Far-Field RCS Measurement Method for Multiple-Scattering Target. *Hu*, *C*., +, *TIM Oct. 2019 3733-3739* 

# Electromagnetic waves

Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures. Foudazi, A., +, TIM Feb. 2019 576-585

Frequency Extension of Atomic Measurement of Microwave Strength Using Zeeman Effect. *Kinoshita, M.*, +, *TIM June 2019 2274-2279* 

# Electrometers

Electrometer Calibration With Sub-Part-Per-Million Uncertainty. Scherer, H., +, TIM June 2019 1887-1894

# Electromyography

A Multiview Discriminant Feature Fusion-Based Nonlinear Process Assessment and Diagnosis: Application to Medical Diagnosis. *Hazarika*, A., +, *TIM July 2019 2498-2506* 

#### Electron density

AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K. Kucera, J., +, TIM June 2019 2106-2112

#### **Electronic engineering computing**

Real-Time Prediction for IC Aging Based on Machine Learning. *Huang, K.*, +, *TIM Dec. 2019 4756-4764* 

RideNN: A New Rider Optimization Algorithm-Based Neural Network for Fault Diagnosis in Analog Circuits. *Binu*, *D.*, +, *TIM Jan. 2019 2-26* 

#### Electronic noses

Deep Nearest Class Mean Model for Incremental Odor Classification. Cheng, Y., +, TIM April 2019 952-962

# **Electronic products**

Compact Intermodulation Modulator for Phase Reference in Passive Intermodulation Measurements. Chen, X., +, TIM Dec. 2019 4612-4614

#### **Electronic tongues**

Tea Quality Prediction by Sparse Modeling of Electronic Tongue Signals. Saha, P., +, TIM Sept. 2019 3046-3053

#### **Electrostatic actuators**

A Simple Electrostatic Balance for the Milligram Range. *Pisani, M.*, +, *TIM June 2019 2223-2228* 

#### Electrostatic devices

Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors. Reda, K., +, TIM May 2019 1467-1476

#### Electrostatics

Measurement System Based on Electrostatic Sensors to Detect Moving Charged Debris With Planar-Isotropic Accuracy. *Addabbo*, *T.*, +, *TIM March* 2019 837-844

# **Elemental semiconductors**

Electron Paramagnetic Resonance Study on <sup>28</sup>Si Single Crystal for the Future Realization of the Kilogram. *Mizushima, S., +, TIM June 2019 1879-1886* Volume Measurement of a <sup>28</sup>Si-Enriched Sphere for a Determination of the Avogadro Constant at NMIJ. *Kuramoto, N., +, TIM June 2019 1913-1920* 

#### Ellipsometry

Volume Measurement of a <sup>28</sup>Si-Enriched Sphere for a Determination of the Avogadro Constant at NMIJ. *Kuramoto*, N., +, TIM June 2019 1913-1920

# Encoding

Accurate Step Length Estimation for Pedestrian Dead Reckoning Localization Using Stacked Autoencoders. *Gu, F., +, TIM Aug. 2019 2705-2713* 

# Energy conservation

Pantograph-to-OHL Arc: Conducted Effects in DC Railway Supply System. Crotti, G., +, TIM Oct. 2019 3861-3870

## **Energy efficiency**

Analytical Formulation for Power, Energy, and Efficiency Measurement of Ultracapacitor Using Fractional Calculus. *Kumar, M.R.*, +, *TIM Dec. 2019* 4834-4844

## **Energy harvesting**

A Low-Threshold Bistable Device for Energy Scavenging From Wideband Mechanical Vibrations. *Ando, B., +, TIM Jan. 2019 280-290* 

A Measurement Methodology for the Characterization of a Compensated Nonlinear Energy Harvester for Vertical Operation. *Ando, B.*, +, *TIM Aug.* 2019 3032-3041

A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan, S.*, +, *TIM Aug. 2019 2871-2879* 

Modeling a Nonlinear Harvester for Low Energy Vibrations. *Ando, B.*, +, TIM May 2019 1619-1627

Special Section on Sensors Applications Symposium. *Gupta, G.S.*, +, *TIM July 2019 2333-2334* 

# Energy loss of particles

The Focal-Plane Detector Package on the TUNL Split-Pole Spectrograph. Marshall, C., +, TIM Feb. 2019 533-546

### **Energy management systems**

Uncertainty Analysis in Time Distribution Mechanisms for OMS Smart Meters: The Last-Mile Time Synchronization Issue. *Rinaldi, S.*, +, *TIM March* 2019 693-703

## **Energy measurement**

Analytical Formulation for Power, Energy, and Efficiency Measurement of Ultracapacitor Using Fractional Calculus. *Kumar, M.R.*, +, *TIM Dec. 2019* 4834-4844

Characterization of DC Current Sensors With AC Distortion for Railway Applications. van den Brom, H.E., +, TIM June 2019 2084-2090

# **Entropy**

A Robust Pulse Onset and Peak Detection Method for Automated PPG Signal Analysis System. *Vadrevu*, S., +, TIM March 2019 807-817

Effective and Efficient Blind Quality Evaluator for Contrast Distorted Images. Yue, G., +, TIM Aug. 2019 2733-2741

Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. *Wang, H., +, TIM Oct. 2019 3536-3547* Image Fusion Using Adjustable Non-subsampled Shearlet Transform. *Vishwakarma, A., +, TIM Sept. 2019 3367-3378* 

# **Environmental monitoring (geophysics)**

Unattended Acoustic Sensor Systems For Source Detection, Classification, and Tracking. *Yaremenko, V.*, +, *TIM Feb. 2019 344-354* 

#### **Epoxy insulation**

Compact Intermodulation Modulator for Phase Reference in Passive Intermodulation Measurements. Chen, X., +, TIM Dec. 2019 4612-4614

#### **Equivalent circuits**

A High-Frequency and High Spatial Resolution Probe Design for EMI Prediction. *Yang, R.*, +, *TIM Aug. 2019 3012-3019* 

An Improved Match Method of Capacitive Divider for Measurement of Nanosecond-Range HV Pulses. Yu, B., +, TIM Oct. 2019 4146-4151

#### Error analysis

A Capacitive-Coupled Noncontact Probe for the Measurement of Conductivity of Liquids. *Tejaswini, K.K.*, +, *TIM May 2019 1602-1610* 

#### Error compensation

A New Method for Calibrating Nonlinear Coefficients of PIGA on Linear Vibrator. Ren, S., +, TIM Aug. 2019 2898-2906

A Novel Approach for the Error Correction of CT in the Presence of Harmonic Distortion. *Ballal, M.S.*, +, *TIM Oct. 2019 4015-4027* 

An Acoustic Resonance-Based Liquid Level Detector With Error Compensation. Xu, X., +, TIM April 2019 963-971

On-Line Measurement of Dynamic Tilt Angle by Compensating Gyroscope Drift Error. Shi, L., +, TIM Sept. 2019 3244-3252

Practical Application of Latest Optimal Hollow Active Auxiliary Electrode in Vertical Calculable Cross-Capacitor at NIM. *Huang, L., +, TIM June 2019 2144-2150* 

# Estimation theory

Aging in Commercial Thick- and Thin-Film Resistors: Survey and Uncertainty Analysis. *Mallett, T.C., TIM Nov. 2019 4190-4204* 

Decentralized Load Estimation for Distribution Systems Using Artificial Neural Networks. Chen, Y., +, TIM May 2019 1333-1342

Estimation of the Power Quantities Below One Signal Period Using DFT Coefficients. Stremfelj, J., +, TIM June 2019 1696-1704

Tacholess Speed Estimation in Order Tracking: A Review With Application to Rotating Machine Fault Diagnosis. *Lu*, *S*., +, *TIM July 2019 2315-2332* 

# Eye

Contactless Monitoring of Pulse Rate and Eye Movement for Uveal Melanoma Patients Undergoing Radiation Therapy. *Lin*, *Y*., +, *TIM Feb. 2019* 474-482

F

### Fabrics

Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks. *Feng, B., +, TIM May 2019 1252-1260* 

## **Fabry-Perot interferometers**

A New Device Based on Interferometric Optical Detection Method for Label-Free Screening of C-Reactive Protein. *Maigler, M.V.*, +, *TIM Sept.* 2019 3193-3199

Practical Application of Latest Optimal Hollow Active Auxiliary Electrode in Vertical Calculable Cross-Capacitor at NIM. Huang, L., +, TIM June 2019 2144-2150

### Face recognition

Video-Based Heart Rate Measurement: Recent Advances and Future Prospects. Chen, X., +, TIM Oct. 2019 3600-3615

### **Fading channels**

A Robust Modulation Classification Method for PSK Signals Using Random Graphs. *Eldemerdash, Y.A.*, +, *TIM Feb. 2019 642-644* 

Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems. *Gupta, R.*, +, *TIM Aug.* 2019 3020-3031

#### Failure (mechanical)

Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors. Waters, D.H., +, TIM Feb. 2019 595-605

#### Failure analysis

- Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461
- Health Assessment Method for Electronic Components Subject to Condition Monitoring and Hard Failure. Zhao, S., +, TIM Jan. 2019 138-150
- Intelligent Failure Diagnosis for Gas Circuit Breakers Based on Dynamic Resistance Measurements. *Abdollah, M.*, +, *TIM Sept. 2019 3066-3077*
- Low-Cost Online Contact Resistance Measurement of Power Connectors to Ease Predictive Maintenance. *Kadechkar, A., +, TIM Dec. 2019 4825-4833*
- Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V., +, TIM Aug. 2019 2691-2704*
- Real-Time Prediction for IC Aging Based on Machine Learning. *Huang, K.*, +, *TIM Dec.* 2019 4756-4764

#### **Fast Fourier transforms**

- A New Method With Hilbert Transform and Slip-SVD-Based Noise-Suppression Algorithm for Noisy Power Quality Monitoring. *Wang*, *Y*., +, *TIM April* 2019 987-1001
- A Single-Channel SSVEP-Based Instrument With Off-the-Shelf Components for Trainingless Brain-Computer Interfaces. *Angrisani, L.*, +, *TIM Oct.* 2019 3616-3625
- Design of Low-Complexity 3-D Underwater Imaging System With Sparse Planar Arrays. Zhao, D., +, TIM Oct. 2019 3418-3432
- Fast Fourier-Based Implementation of Synthetic Aperture Radar Algorithm for Multistatic Imaging System. Abbasi, M., +, TIM Sept. 2019 3339-3349
- Improved Blind Timing Skew Estimation Based on Spectrum Sparsity and ApFFT in Time-Interleaved ADCs. *Liu*, S., +, *TIM Jan. 2019 73-86*
- Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061
- Ultrasonic Distance Measurement Method With Crosstalk Rejection at High Measurement Rate. Shin, S., +, TIM April 2019 972-979

### Fasteners

Real-Time Image-Based Defect Inspection System of Internal Thread for Nut. Lin, C., +, TIM Aug. 2019 2830-2848

# **Fatigue**

Pilots' Fatigue Status Recognition Using Deep Contractive Autoencoder Network. Wu, E.Q., +, TIM Oct. 2019 3907-3919

# Fats

Hardware Platform to Detect Fat Percent in Milk Using a Lipase Immobilized PMMA-Coated Sensor. *Chakraborty, M.*, +, *TIM Nov. 2019 4526-4534* 

# Fault currents

An Arc Fault Detection Method Based on Current Amplitude Spectrum and Sparse Representation. Qu, N., +, TIM Oct. 2019 3785-3792

# Fault diagnosis

- Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753
- An Approach on MCSA-Based Fault Detection Using Independent Component Analysis and Neural Networks. *Garcia-Bracamonte, J.E.*, +, *TIM May 2019 1353-1361*
- An Arc Fault Detection Method Based on Current Amplitude Spectrum and Sparse Representation. Qu, N., +, TIM Oct. 2019 3785-3792
- An Enhanced Trace Ratio Linear Discriminant Analysis for Fault Diagnosis: An Illustrated Example Using HDD Data. *Yang, A.*, +, *TIM Dec. 2019* 4629-4639
- Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning. Kao, I., +, TIM Feb. 2019 310-324
- Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233*

- Broken Rotor Bar Detection in Induction Motors Based on Air-Gap Rotational Magnetic Field Measurement. *Soleimani, Y.*, +, *TIM Aug. 2019* 2916-2925
- Detection of Winding Faults Based on a Characterization of the Nonlinear Dynamics of Transformers. *Zheng*, *J.*. +, *TIM Jan*. 2019 206-214
- Doppler Distortion Removal in Wayside Circular Microphone Array Signals. Ouyang, K., +, TIM May 2019 1238-1251
- Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461
- Early Fault Diagnosis and Classification of Ball Bearing Using Enhanced Kurtogram and Gaussian Mixture Model. *Hong, Y.*, +, *TIM Dec. 2019* 4746-4755
- Fast Nonlinear Chirplet Dictionary-Based Sparse Decomposition for Rotating Machinery Fault Diagnosis Under Nonstationary Conditions. *Yang, B.*, +, *TIM Dec. 2019 4736-4745*
- Fault Detection for Rolling-Element Bearings Using Multivariate Statistical Process Control Methods. *Jin, X.*, +, *TIM Sept. 2019 3128-3136*
- Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network. *Jin, Y., +, TIM April 2019 1026-1034*
- Full Optical Fiber Link Characterization With the BSS-Lasso. Saavedra, R., +, TIM Oct. 2019 4162-4174
- Instantaneous Rotation Speed Measurement System Based on Variable Reluctance Sensors for Torsional Vibration Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2363-2373*
- Intelligent Diagnosis of V-Type Marine Diesel Engines Based on Multifeatures Extracted From Instantaneous Crankshaft Speed. Zhang, M., +, TIM March 2019 722-740
- Intelligent Failure Diagnosis for Gas Circuit Breakers Based on Dynamic Resistance Measurements. *Abdollah, M.*, +, *TIM Sept. 2019 3066-3077*
- Linearized Bregman Iterations for Automatic Optical Fiber Fault Analysis. *Lunglmayr, M.*, +, *TIM Oct. 2019 3699-3711*
- Low Frequency Model-Based Identification of Soft Impedance Faults in Cables. Cozza, A., TIM Oct. 2019 3524-3535
- Low-Cost Online Contact Resistance Measurement of Power Connectors to Ease Predictive Maintenance. *Kadechkar, A., +, TIM Dec. 2019 4825-4833*
- Mechanical Fault Diagnostics of Power Transformer On-Load Tap Changers Using Dynamic Time Warping. *Yang, R.*, +, *TIM Sept. 2019 3119-3127*
- MLMVNNN for Parameter Fault Detection in PWM DC–DC Converters and Its Applications for Buck and Boost DC–DC Converters. *Luchetta*, A., +, TIM Feb. 2019 439-449
- Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372
- Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V., +, TIM Aug. 2019 2691-2704*
- RideNN: A New Rider Optimization Algorithm-Based Neural Network for Fault Diagnosis in Analog Circuits. *Binu*, *D.*, +, *TIM Jan*. 2019 2-26
- Tacholess Speed Estimation in Order Tracking: A Review With Application to Rotating Machine Fault Diagnosis. Lu, S., +, TIM July 2019 2315-2332
- Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019*
- Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252
- Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors. *Reda, K.*, +, *TIM May 2019 1467-1476*

# Fault location

- Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019* 215-224
- Fault Detection of VLSI Power Supply Network Based on Current Estimation From Surface Magnetic Field. *Takahashi*, D., +, *TIM July 2019 2519-2530*

# Feature extraction

3-D Ultrasound Palmprint Recognition System Based on Principal Lines Extracted at Several Under Skin Depths. *Iula*, A., +, *TIM Dec. 2019 4653-4662* 

- A CNN-Based Defect Inspection Method for Catenary Split Pins in High-Speed Railway. Zhong, J., +, TIM Aug. 2019 2849-2860
- A Coarse-to-Fine Model for Rail Surface Defect Detection. Yu, H., +, TIM March 2019 656-666
- A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014*
- A Multiview Discriminant Feature Fusion-Based Nonlinear Process Assessment and Diagnosis: Application to Medical Diagnosis. *Hazarika*, A., +, *TIM July 2019 2498-2506*
- A Novel Global Localization Approach Based on Structural Unit Encoding and Multiple Hypothesis Tracking. Gao, H., +, TIM Nov. 2019 4427-4442
- A Robust Wrist Pulse Acquisition System Based on Multisensor Collaboration and Signal Quality Assessment. *Jiang, Z.*, +, *TIM Dec. 2019 4807-4816*
- A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings. *Hong, K.*, +, *TIM April 2019 1221-1229*
- An Approach of Single-Crystal Defect Detection Using X-Ray Orientation Instrument. *Guan, S., +, TIM Oct. 2019 4122-4134*
- An Approach on MCSA-Based Fault Detection Using Independent Component Analysis and Neural Networks. *Garcia-Bracamonte, J.E.*, +, *TIM May 2019 1353-1361*
- An Inhaler Tracking System Based on Acoustic Analysis: Hardware and Software. Xie, W., +, TIM Nov. 2019 4472-4480
- Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning. Kao, I., +, TIM Feb. 2019 310-324
- Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233*
- Characterization of  $S_1$  and  $S_2$  Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, M., +, TIM Sept. 2019 3211-3220
- Classification of Manufacturing Defects in Multicrystalline Solar Cells With Novel Feature Descriptor. Su, B., +, TIM Dec. 2019 4675-4688
- Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461
- Early Fault Diagnosis and Classification of Ball Bearing Using Enhanced Kurtogram and Gaussian Mixture Model. *Hong, Y., +, TIM Dec. 2019* 4746-4755
- Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network. *Jin, Y., +, TIM April 2019 1026-1034*
- Generalized Completed Local Binary Patterns for Time-Efficient Steel Surface Defect Classification. *Luo*, *Q*., +, *TIM March 2019 667-679*
- Intelligent Diagnosis of V-Type Marine Diesel Engines Based on Multifeatures Extracted From Instantaneous Crankshaft Speed. Zhang, M., +, TIM March 2019 722-740
- Measuring the Local and Global Variabilities in Body Sway by Nonlinear Poincaré Technology. *Zhang, S.*, +, *TIM Dec. 2019 4817-4824*
- Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network. Wei, X., +, TIM Nov. 2019 4481-4492
- Person Recognition Using 3-D Palmprint Data Based on Full-Field Sinusoidal Fringe Projection. Bai, X., +, TIM Sept. 2019 3287-3298
- Pilots' Fatigue Status Recognition Using Deep Contractive Autoencoder Network. Wu, E.Q., +, TIM Oct. 2019 3907-3919
- Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V.*, +, *TIM Aug. 2019 2691-2704*
- Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. *Mayer, P., +, TIM July 2019 2346-2355*
- Surface Defects Detection Based on Adaptive Multiscale Image Collection and Convolutional Neural Networks. Sun, J., +, TIM Dec. 2019 4787-4797
- Tea Quality Prediction by Sparse Modeling of Electronic Tongue Signals. Saha, P., +, TIM Sept. 2019 3046-3053
- The Influence of Uncertainty Contributions on Deep Learning Architectures in Vision-Based Evaluation Systems. *Callari, G.*, +, *TIM July 2019 2425-2432*
- Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019* 2819-2829

Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

### Feedback

- Disturbance Observer-Based Control of Tip-Tilt Mirror for Mitigating Telescope Vibrations. *Tang*, *T.*, +, *TIM Aug. 2019 2785-2791*
- Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501
- Sensitivity and Resolution Enhancement of Coupled-Core Fluxgate Magnetometer by Negative Feedback. *Li*, *J.*, +, *TIM Feb. 2019 623-631*

#### Feedforward neural networks

- Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233*
- Binary Volumetric Convolutional Neural Networks for 3-D Object Recognition. *Ma*, *C.*, +, *TIM Jan. 2019 38-48*
- RGB-DI Images and Full Convolution Neural Network-Based Outdoor Scene Understanding for Mobile Robots. *Qiu*, *Z.*, +, *TIM Jan. 2019 27-37*

# Fiber optic gyroscopes

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

#### Fiber optic sensors

- A Novel PD Detection Technique for Use in GIS Based on a Combination of UHF and Optical Sensors. *Han, X., +, TIM Aug. 2019 2890-2897*
- A Novel Sensing Methodology to Detect Furfural in Water, Exploiting MIPs, and Inkjet-Printed Optical Waveguides. *Cennamo*, N., +, *TIM May 2019* 1582-1589
- A Rotation Independent In-Place Inclinometer/Tilt Sensor Based on Fiber Bragg Grating. *Maheshwari*, M., +, TIM Aug. 2019 2943-2953
- An Optical Sampling System for Distributed Atmospheric Particulate Matter. *Lombardo*, *L.*, +, *TIM July* 2019 2396-2403
- Fiber Bragg Grating-Based Oil-Film Pressure Measurement in Journal Bearings. Mu, B., +, TIM May 2019 1575-1581
- Highly Sensitive SPR Biosensor Based on Graphene Oxide and Staphylococcal Protein A Co-Modified TFBG for Human IgG Detection. *Wang, Q.*, +, *TIM Sept. 2019 3350-3357*
- Kerr Electro-Optic Sensor for Electric Field in Large-Scale Oil–Pressboard Insulation Structure. *Gao, C.*, +, *TIM Oct. 2019 3626-3634*
- Magnetic Field Sensing Based on SPR Optical Fiber Sensor Interacting With Magnetic Fluid. *Zhou, X.*, +, *TIM Jan. 2019 234-239*
- Magnetic-Field Measurement Based on Multicore Fiber Taper and Magnetic Fluid. *Yue*, C., +, TIM March 2019 688-692
- Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors. Waters, D.H., +, TIM Feb. 2019 595-605
- Pseudohigh-Resolution Spectral Interrogation Scheme for Small Signals From FBG Sensors. *Lim, K., +, TIM Aug. 2019 2964-2970*
- Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574
- Theoretical Analysis of Sensitivity Enhancement by Graphene Usage in Optical Fiber Surface Plasmon Resonance Sensors. *Melo, A.A.d.*, +, *TIM May 2019 1554-1560*

## Field buses

Chaotic Encryption Applied to Optical Ethernet in Industrial Control Systems. *Perez-Resa, A.*, +, *TIM Dec. 2019 4876-4886* 

# Field effect transistors

Peculiarities of Hardware for Electrochemical Noise Measurement in Chemical Power Sources. Astafev, E., +, TIM Nov. 2019 4412-4418

# Field programmable gate arrays

- A 2.3-ps RMS Resolution Time-to-Digital Converter Implemented in a Low-Cost Cyclone V FPGA. Sui, T., +, TIM Oct. 2019 3647-3660
- A Review of New Time-to-Digital Conversion Techniques. *Tancock*, S., +, *TIM Oct.* 2019 3406-3417
- An Advanced 100-Channel Readout System for Nuclear Imaging. Zhao, Z., +, TIM Sept. 2019 3200-3210

- An Optoelectronic Pulse Drive for Quantum Voltage Synthesizer. *Ireland*, J., +, TIM June 2019 2066-2071
- Chaos-Based Bitwise Dynamical Pseudorandom Number Generator On FPGA. *Garcia-Bosque*, M., +, TIM Jan. 2019 291-293
- Chaotic Encryption Applied to Optical Ethernet in Industrial Control Systems. *Perez-Resa, A.*, +, *TIM Dec. 2019 4876-4886*
- FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386*
- FPGA-Based Implementation of an Artificial Neural Network for Measurement Acceleration in BOTDA Sensors. *Abbasnezhad, M.*, +, *TIM Nov.* 2019 4326-4334
- Frequency Estimation Based on Moving-Window DFT With Fractional Bin-Index for Capacitance Measurement. *Tyagi*, *T.*, +, *TIM July 2019* 2560-2569
- Improved Blind Timing Skew Estimation Based on Spectrum Sparsity and ApFFT in Time-Interleaved ADCs. Liu, S., +, TIM Jan. 2019 73-86
- Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *Aranzabal*, N., +, *TIM April 2019 1062-1070*
- Recent Developments and Challenges in FPGA-Based Time-to-Digital Converters. *Machado, R.*, +, *TIM Nov. 2019 4205-4221*
- Synchronous Adaptive Resolver-to-Digital Converter for FPGA-Based High-Performance Control Loops. *Sabatini, V.*, +, *TIM Oct. 2019 3972-3982*
- Tracking a Golf Ball With High-Speed Stereo Vision System. Wang, S., +, TIM Aug. 2019 2742-2754
- Unattended Acoustic Sensor Systems For Source Detection, Classification, and Tracking. *Yaremenko, V.*, +, *TIM Feb. 2019 344-354*

#### Filtering theor

- A New Method With Hilbert Transform and Slip-SVD-Based Noise-Suppression Algorithm for Noisy Power Quality Monitoring. *Wang, Y., +, TIM April 2019 987-1001*
- A Robust Pulse Onset and Peak Detection Method for Automated PPG Signal Analysis System. *Vadrevu, S.*, +, *TIM March 2019 807-817*
- Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753
- Noise Power Estimators in ISM Radio Environments: Performance Comparison and Enhancement Using a Novel Samples Separation Technique. Nikonowicz, J., +, TIM Jan. 2019 105-115
- Parameter Measurement of M-Ary PSK Signals With Finite Rate of Innovation. Fu, N., +, TIM May 2019 1271-1283
- State Estimation of Slow-Rate Integrated Measurement Systems in the Presence of Parametric Uncertainties. Salehi, Y., +, TIM Oct. 2019 3983-3991
- Ultrasonic Distance Measurement Method With Crosstalk Rejection at High Measurement Rate. Shin, S., +, TIM April 2019 972-979
- Wiener-Hammerstein System Identification: A Fast Approach Through Spearman Correlation. Shaikh, M.A.H., +, TIM May 2019 1628-1636

# Fingerprint identification

- An Accurate Visible Light Positioning System Using Regenerated Fingerprint Database Based on Calibrated Propagation Model. *Alam, F.*, +, *TIM Aug. 2019 2714-2723*
- Characterization of Biometric Template Aging in a Multiyear, Multivendor Longitudinal Fingerprint Matching Study. *Harvey, J.*, +, *TIM April 2019* 1071-1079

### Finite element analysis

- A Fluxgate-Based Approach for Ion Beam Current Measurement in ECRIS Beamline: Design and Preliminary Investigations. *Ando, B.*, +, *TIM May* 2019 1477-1484
- A Self-Gap-Correction Method for Accurate Permittivity Measurement Using the Hybrid Optimization Algorithm. *Xu*, *H*., +, *TIM June 2019 1781-1787*
- Accurate Technique for Electrical Permittivity Measurement of Biological Tissue Specimens at Low Frequencies. *Hesabgar, S.M.*, +, *TIM July 2019 2479-2490*
- Broken Rotor Bar Detection in Induction Motors Based on Air-Gap Rotational Magnetic Field Measurement. *Soleimani, Y.*, +, *TIM Aug. 2019* 2916-2925

- Comparative Study on Modeling Approaches of V-Shaped MEMS Temperature Sensors. *Cohen, Y., +, TIM Oct. 2019 3766-3775*
- Design and Characterization of a Fringing Field Capacitive Soil Moisture Sensor. *Protim Goswami, M.*, +, *TIM March 2019 913-922*
- Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient. Zhang, X., +, TIM March 2019 680-687
- Finger Displacement Sensing: FEM Simulation and Model Prediction of a Three-Layer Electrode Design. *Hu*, *N*., +, *TIM May 2019 1432-1440*
- Intelligent Failure Diagnosis for Gas Circuit Breakers Based on Dynamic Resistance Measurements. *Abdollah, M.*, +, *TIM Sept. 2019 3066-3077*
- Measurement of Distorted Power-Frequency Electric Field With Integrated Optical Sensor. *Li*, *Z*., +, *TIM April 2019 1132-1139*
- Measurement of Oil-Water Interface Characteristics in Horizontal Pipe Using a Conductance Parallel-Wire Array Probe. *Zhai, L., +, TIM Sept.* 2019 3232-3243
- Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors. Waters, D.H., +, TIM Feb. 2019 595-605
- Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy. Wei, Z., +, TIM Jan. 2019 197-205

### FIR filters

- Dynamic Harmonic Synchrophasor Estimator Based on Sinc Interpolation Functions. Chen, L., +, TIM Sept. 2019 3054-3065
- Product-Specific Nonlinear Characterization and Instrument for Illumination Angle Measurement With Manufacturing Defects. *Liu*, G., +, *TIM Sept.* 2019 3299-3307

#### **Fixtures**

Modeling and Validation of Fixture-Induced Error for Impedance Measurements. Nelson, B.W., +, TIM Jan. 2019 129-137

#### Flames

Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131

# Flammability

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana*, *M.*, +, *TIM Dec.* 2019 4853-4863

# Flaw detection

- Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks. Feng, B., +, TIM May 2019 1252-1260
- Sparse Reconstruction-Based Thermal Imaging for Defect Detection. *Roy*, D., +, *TIM Nov.* 2019 4550-4558
- Surface Defects Detection Based on Adaptive Multiscale Image Collection and Convolutional Neural Networks. Sun, J., +, TIM Dec. 2019 4787-4797

### Floating point arithmetic

Binary Volumetric Convolutional Neural Networks for 3-D Object Recognition. *Ma, C.*, +, *TIM Jan. 2019 38-48* 

# Flow measurement

- A New Contactless Bubble/Slug Velocity Measurement Method of Gas-Liquid Two-Phase Flow in Small Channels. *Huang, J.*, +, *TIM Sept. 2019* 3253-3267
- High-Precision Time-of-Flight Determination Algorithm for Ultrasonic Flow Measurement. Sunol, F., +, TIM Aug. 2019 2724-2732
- Measurement of Oil-Water Interface Characteristics in Horizontal Pipe Using a Conductance Parallel-Wire Array Probe. *Zhai, L., +, TIM Sept.* 2019 3232-3243
- QCM-Micropillar-Based Coupled Resonators in the Detection of Gas Mass Flow Rates. *Kashan, M.A.M.*, +, *TIM Jan. 2019 303-305*
- The Effect of Internal Pipe Wall Roughness on the Accuracy of Clamp-On Ultrasonic Flowmeters. Gu, X., +, TIM Jan. 2019 65-72
- Torsional Balance for Simultaneous Evaluation of Thrust Force and Flow Velocity of Electrostatically Induced Ionic Wind. *Lee, J.R.*, +, *TIM Nov.* 2019 4518-4525

### Flow sensors

- A New Contactless Bubble/Slug Velocity Measurement Method of Gas-Liquid Two-Phase Flow in Small Channels. *Huang, J.*, +, *TIM Sept. 2019* 3253-3267
- The Effect of Internal Pipe Wall Roughness on the Accuracy of Clamp-On Ultrasonic Flowmeters. Gu, X., +, TIM Jan. 2019 65-72

#### Flow visualization

Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan*, Z., +, *TIM Feb.* 2019 462-473

IR Transceiver Irradiation Characteristics on Bubble/Slug Flow Regimes in Conventional and Minichannels. Mithran, N., +, TIM Jan. 2019 240-249

# **Flowmeters**

Dynamic Offset Correction of Electromagnetic Flowmeters. *Linnert, M.A.*, +, *TIM May 2019 1284-1293* 

High-Precision Time-of-Flight Determination Algorithm for Ultrasonic Flow Measurement. Sunol, F., +, TIM Aug. 2019 2724-2732

The Effect of Internal Pipe Wall Roughness on the Accuracy of Clamp-On Ultrasonic Flowmeters. Gu, X., +, TIM Jan. 2019 65-72

#### Fluid flow measurenment

Recovering of Corrupted Ultrasonic Waves, for Determination of TOF Using the Zero-Crossing Detection Technique. Fabiano dos Santos, J.C., +, TIM Nov. 2019 4234-4241

#### Fluid mechanics

Gas-Liquid Flow Pattern Analysis Based on Graph Connectivity and Graph-Variate Dynamic Connectivity of ERT. *Tan, C.*, +, *TIM May 2019* 1590-1601

#### Fluid oscillations

Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061

# Fluidic devices

3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications. S. B., P., +, TIM July 2019 2648-2655

#### Fluorescence

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana, M.*, +, *TIM Dec.* 2019 4853-4863

#### Fluxgate magnetometers

A Novel Calibration Method for Magnetometer Array in Nonuniform Background Field. Mu, Y., +, TIM Oct. 2019 3677-3685

Sensitivity and Resolution Enhancement of Coupled-Core Fluxgate Magnetometer by Negative Feedback. Li, J., +, TIM Feb. 2019 623-631

### Focal planes

Radiometric Calibration of Digital Counts of Infrared Thermal Cameras.

Gonzalez-Chavez, O., +, TIM Nov. 2019 4387-4399

# Food technology

Hardware Platform to Detect Fat Percent in Milk Using a Lipase Immobilized PMMA-Coated Sensor. *Chakraborty, M.*, +, *TIM Nov. 2019 4526-4534* 

### **Footwear**

OPTICS-Based Template Matching for Vision Sensor-Based Shoe Detection in Human–Robot Coexisting Environments. *Paral*, *P.*, +, *TIM Nov. 2019* 4276-4284

# Force

Thermal Force Uncertainty of Piezoelectric Dynamometer. Zhang, J., +, TIM Dec. 2019 4723-4735

### Force control

Comparative Study on Modeling Approaches of V-Shaped MEMS Temperature Sensors. *Cohen, Y.*, +, *TIM Oct. 2019 3766-3775* 

Design of a Novel Elastic Torque Sensor for Hand Injuries Rehabilitation Based on Bowden Cable. *Zhang, F.*, +, *TIM Sept. 2019 3184-3192* 

### Force measurement

On the Design of Force Sensors Based on Frustrated Total Internal Reflection. Lavatelli, A., +, TIM Oct. 2019 4065-4074

Optimization Procedure for the Determination of Faraday's Voltage in UME Kibble Balance (July 2018). *Ahmedov, H.*, +, *TIM June 2019 2172-2175* 

The Status of PTB's Nanonewton Force Facility. Nesterov, V., +, TIM June 2019 1982-1989

Torsional Balance for Simultaneous Evaluation of Thrust Force and Flow Velocity of Electrostatically Induced Ionic Wind. *Lee, J.R.*, +, *TIM Nov.* 2019 4518-4525

### Force sensors

On the Design of Force Sensors Based on Frustrated Total Internal Reflection. Lavatelli, A., +, TIM Oct. 2019 4065-4074

The Status of PTB's Nanonewton Force Facility. *Nesterov, V.*, +, *TIM June* 2019 1982-1989

### Fourier analysis

Space Vector Taylor–Fourier Models for Synchrophasor, Frequency, and ROCOF Measurements in Three-Phase Systems. *Castello, P.*, +, *TIM May 2019 1313-1321* 

#### Fourier transform infrared spectra

Electron Paramagnetic Resonance Study on <sup>28</sup>Si Single Crystal for the Future Realization of the Kilogram. *Mizushima*, S., +, *TIM June 2019 1879-1886* 

#### Fourier transform optics

A Hyperspectral Imaging Instrumentation Architecture Based on Accessible Optical Disc Technology and Frequency-Domain Analyses. *Brodie, C.H.*, +, *TIM July 2019 2531-2538* 

#### Fourier transform spectra

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana*, *M.*, +, *TIM Dec.* 2019 4853-4863

#### Fourier transforms

A Novel Technique for Fundamental and Harmonic Parameter Estimation Using Nonergodic S-Transform. Yi, J., +, TIM Oct. 2019 3503-3513

Dynamic Harmonic Synchrophasor Estimator Based on Sinc Interpolation Functions. Chen, L., +, TIM Sept. 2019 3054-3065

Mechanical Fault Diagnostics of Power Transformer On-Load Tap Changers Using Dynamic Time Warping. *Yang, R.*, +, *TIM Sept. 2019 3119-3127* 

Nondestructive Evaluation of Microwave-Penetrable Pipes by Synthetic Aperture Imaging Enhanced by Full-Wave Field Propagation Model. *Laviada*, *J.*, +, *TIM April 2019 1112-1119* 

Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019* 2819-2829

# Fractional calculus

Analytical Formulation for Power, Energy, and Efficiency Measurement of Ultracapacitor Using Fractional Calculus. *Kumar, M.R.*, +, *TIM Dec. 2019* 4834-4844

### Fracture

Detecting Defects in Porcelain Postinsulator Coated With Room Temperature Vulcanized Silicone Rubber by Pulsed Thermography. *Liu*, *L.*, +, *TIM Jan. 2019* 225-233

### Frequency estimation

A Novel Technique for Fundamental and Harmonic Parameter Estimation Using Nonergodic S-Transform. Yi, J., +, TIM Oct. 2019 3503-3513

An Interharmonic Phasor and Frequency Estimator for Subsynchronous Oscillation Identification and Monitoring. *Chen, L.*, +, *TIM June 2019 1714-1723* 

Dynamic Frequency and Amplitude Estimation for Three-Phase Unbalanced Power Systems Using the Unscented Kalman Filter. *Wu, C.*, +, *TIM Sept.* 2019 3387-3395

Frequency Estimation Based on Moving-Window DFT With Fractional Bin-Index for Capacitance Measurement. *Tyagi*, *T.*, +, *TIM July 2019* 2560-2569

Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling. *Kitzig, J.*, +, *TIM April 2019 1014-1025* 

Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019 2819-2829* 

# Frequency measurement

A Fast Identification on the Spin-Exchange Relaxation-Free Regime of Atomic Magnetometer Exploiting Measurement on Gyromagnetic Ratio. *Zhang, X.*, +, *TIM April 2019 1157-1164* 

A Fluxgate-Based Approach for Ion Beam Current Measurement in ECRIS Beamline: Design and Preliminary Investigations. *Ando, B.*, +, *TIM May* 2019 1477-1484

A Pigeonhole Principle-Based Method for Estimating the Resonant Frequency of SAWR Sensors. *Khoshakhlagh, M.*, +, *TIM Nov. 2019 4502-4509* 

An Acoustic Resonance-Based Liquid Level Detector With Error Compensation. Xu, X., +, TIM April 2019 963-971

Application of FRA to Improve the Design and Maintenance of Wireless Power Transfer Systems. Kim, D., +, TIM Nov. 2019 4313-4325

Calibration of Gigahertz Microwave Generator for the Programmable Josephson Voltage Standard at NRC. Gertsvolf, M., +, TIM June 2019 1901-1906

Design and Implementation of a High-Sensitivity and Compact-Size IFM Receiver. Rahimpour, H., +, TIM July 2019 2602-2609

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. *Urbonas*, J., +, TIM Aug. 2019 2971-2978

Field Measurement of Frequency and ROCOF in the Presence of Phase Steps. Wright, P.S., +, TIM June 2019 1688-1695

Frequency Estimation Based on Moving-Window DFT With Fractional Bin-Index for Capacitance Measurement. *Tyagi, T., +, TIM July 2019* 2560-2569

Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. Das, S., +, TIM Sept. 2019 3308-3320

Output Power and Gain Monitoring in RF CMOS Class A Power Amplifiers by Thermal Imaging. *Perpina, X.*, +, *TIM Aug. 2019 2861-2870* 

Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling. *Kitzig, J.*, +, *TIM April 2019 1014-1025* 

Space Vector Taylor–Fourier Models for Synchrophasor, Frequency, and ROCOF Measurements in Three-Phase Systems. *Castello, P.*, +, *TIM May* 2019 1313-1321

# Frequency response

Application of FRA to Improve the Design and Maintenance of Wireless Power Transfer Systems. *Kim, D.*, +, *TIM Nov. 2019 4313-4325* 

Dynamic Harmonic Synchrophasor Estimator Based on Sinc Interpolation Functions. Chen, L., +, TIM Sept. 2019 3054-3065

FRF Measurements Subject to Missing Data: Quantification of Noise, Nonlinear Distortion, and Time-Varying Effects. *Pintelon, R.*, +, *TIM Oct. 2019* 4175-4187

Harmonic Distortion Compensation in Voltage Transformers for Improved Power Quality Measurements. Faifer, M., +, TIM Oct. 2019 3823-3830

Measurement of Distorted Power-Frequency Electric Field With Integrated Optical Sensor. *Li*, *Z*., +, *TIM April 2019 1132-1139* 

Overcoming Frequency Response Measurements of Voltage Transformers: An Approach Based on Quasi-Sinusoidal Volterra Models. *Faifer, M.*, +, *TIM Aug. 2019 2800-2807* 

Planar Multijunction Thermal Converters With Increased Sensitivity Operated in Hermetically Sealed Housings Filled With Noble Gas. *Funck, T.*, +, *TIM June 2019 2003-2006* 

Time-Domain Gating Applied to the Quantitative Evaluation of Soft Defects in Embedded Electric Cables. *Loete, F., TIM Nov. 2019 4368-4375* 

# Frequency stability

Two-Branch Fiber Link for International Clock Networks. Xu, D., +, TIM June 2019 2195-2200

## Frequency standards

Past and Future of Optical Clocks Toward Redefinition of the SI Second. *Ido*, T., TIM June 2019 2183-2186

# Frequency-domain analysis

A Hyperspectral Imaging Instrumentation Architecture Based on Accessible Optical Disc Technology and Frequency-Domain Analyses. *Brodie, C.H.*, +, *TIM July 2019 2531-2538* 

Behavioral Representation of a Bridge Rectifier Using Simplified Volterra Models. Faifer, M., +, TIM May 2019 1611-1618

Compensation of Current Transformers' Nonlinearities by Tensor Linearization. Collin, A.J., +, TIM Oct. 2019 3841-3849

Measurement Methodology for Determining the Optimal Frequency Domain Configuration to Accurately Record WiFi Exposure Levels. *Fernandez, M.*, +, *TIM Feb. 2019 547-557* 

Overcoming Frequency Response Measurements of Voltage Transformers: An Approach Based on Quasi-Sinusoidal Volterra Models. *Faifer, M.*, +, *TIM Aug. 2019 2800-2807* 

# Friction

A Statistical Approach for Improving the Accuracy of Dry Friction Coefficient Measurement. Liguori, C., +, TIM May 2019 1412-1423

#### **Function generators**

Harmonic Power Standard of VTT MIKES. Lehtonen, T.A., TIM June 2019 2047-2052

#### **Fuzzy control**

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao*, *X.*, +, *TIM Nov. 2019 4285-4299* 

#### Fuzzy set theory

An Approach of Single-Crystal Defect Detection Using X-Ray Orientation Instrument. *Guan*, S., +, *TIM Oct.* 2019 4122-4134

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao*, *X*., +, *TIM Nov. 2019 4285-4299* 

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#### Gabor filters

Person Recognition Using 3-D Palmprint Data Based on Full-Field Sinusoidal Fringe Projection. *Bai*, X., +, *TIM Sept. 2019 3287-3298* 

#### Gain control

Performance Evaluation of a Time-Domain Microwave System for Medical Diagnostics. Zeng, X., +, TIM Aug. 2019 2880-2889

#### Gain measurement

A Method for Remote Estimation of Wattmeter's Adjustment Gain. *Nakutis*, Z., +, *TIM March* 2019 713-721

On the One-Antenna Gain Measurement Method in Probe Station Environment at mm-Wave Frequencies. *Zheng, J.*, +, *TIM Nov. 2019 4510-4517* 

Output Power and Gain Monitoring in RF CMOS Class A Power Amplifiers by Thermal Imaging. *Perpina, X.*, +, *TIM Aug. 2019 2861-2870* 

Uncertainty Analysis of Far-Field Gain Measurement of DRGH Using the Single-Antenna Method and Amplitude Center Distance. *Matsukawa, S.*, +, *TIM June 2019 1756-1764* 

### Gait analysis

Gait Nonlinear Patterns Related to Parkinson's Disease and Age. *Lahmiri*, *S.*, *TIM July 2019 2545-2551* 

Performance Analysis of the PMD Camboard Picoflexx Time-of-Flight Camera for Markerless Motion Capture Applications. *Pasinetti, S.*, +, *TIM Nov. 2019 4456-4471* 

# Gallium arsenide

AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K. *Kucera*, *J.*, +, *TIM June 2019 2106-2112* 

Graphene Devices for Tabletop and High-Current Quantized Hall Resistance Standards. *Rigosi, A.F.*, +, *TIM June 2019 1870-1878* 

### Garnets

Spincaloritronic Measurements: A Round Robin Comparison of the Longitudinal Spin Seebeck Effect. Sola, A., +, TIM June 2019 1765-1773

# Gas blast circuit breakers

Intelligent Failure Diagnosis for Gas Circuit Breakers Based on Dynamic Resistance Measurements. *Abdollah, M.*, +, *TIM Sept. 2019 3066-3077* 

# Gas insulated switchgear

A Novel PD Detection Technique for Use in GIS Based on a Combination of UHF and Optical Sensors. *Han, X., +, TIM Aug. 2019 2890-2897* 

## Gas sensors

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha, T.*, +, *TIM March 2019 903-912* 

Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. Acharyya, D., +, TIM Aug. 2019 3004-3011

QCM-Micropillar-Based Coupled Resonators in the Detection of Gas Mass Flow Rates. *Kashan, M.A.M.*, +, *TIM Jan. 2019 303-305* 

Self-Calibrated Multiharmonic CO<sub>2</sub> Sensor Using VCSEL for Urban *In Situ* Measurement. *Lan, L., +, TIM April 2019 1140-1147* 

### Gauges

An Acoustic Resonance-Based Liquid Level Detector With Error Compensation. Xu, X., +, TIM April 2019 963-971

# Gaussian mixture model

An Inhaler Tracking System Based on Acoustic Analysis: Hardware and Software. Xie, W., +, TIM Nov. 2019 4472-4480

#### Gaussian noise

High-Accuracy Localization and Calibration for 5-DoF Indoor Magnetic Positioning Systems. *Hehn, M., +, TIM Oct. 2019 4135-4145* 

The Kalman Filter Uncertainty Concept in the Possibility Domain. *Ferrero*, A., +, *TIM Nov.* 2019 4335-4347

#### Gaussian processes

Aging in Commercial Thick- and Thin-Film Resistors: Survey and Uncertainty Analysis. *Mallett, T.C., TIM Nov. 2019 4190-4204* 

Early Fault Diagnosis and Classification of Ball Bearing Using Enhanced Kurtogram and Gaussian Mixture Model. *Hong, Y.*, +, *TIM Dec. 2019* 4746-4755

Fast Defect Inspection Based on Data-Driven Photometric Stereo. *Ren, M.*, +, *TIM April 2019 1148-1156* 

Online Precise Motion Measurement of 3-DOF Nanopositioners Based on Image Correlation. *Li*, *H*., +, *TIM March 2019 782-790* 

PESA: Probabilistic Efficient Storage Algorithm for Time-Domain Spectrum Measurements. Al Kalaa, M.O., +, TIM Feb. 2019 325-333

#### Gears

CGAN-MBL for Reliability Assessment With Imbalanced Transmission Gear Data. Li, J., +, TIM Sept. 2019 3173-3183

Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461

Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

#### Gels

Coaxial Probe for Dielectric Measurements of Aerated Pulverized Materials. Neumayer, M., +, TIM May 2019 1402-1411

#### Generators

Electromagnetic Tracking Using Modular, Tiled Field Generators. *Jaeger, H.A.*, +, *TIM Dec. 2019 4845-4852* 

# Genetic algorithms

Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM. Wang, T., +, TIM March 2019 818-828

### Geodesy

INS/CNS Integrated Navigation Based on Corrected Infrared Earth Measurement. Gou, B., +, TIM Sept. 2019 3358-3366

## Geomagnetism

Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking. Dai, H., +, TIM Sept. 2019 3379-3386

### Geometry

The Status of PTB's Nanonewton Force Facility. Nesterov, V., +, TIM June 2019 1982-1989

### Geomorphology

Wireless Sensor Network System for Landslide Monitoring and Warning. Giri, P., +, TIM April 2019 1210-1220

### Geophysical equipment

Wireless Sensor Network System for Landslide Monitoring and Warning. Giri, P., +, TIM April 2019 1210-1220

# Geophysical image processing

Design of Low-Complexity 3-D Underwater Imaging System With Sparse Planar Arrays. Zhao, D., +, TIM Oct. 2019 3418-3432

## Geophysical signal processing

Gravity Disturbance Compensation for Inertial Navigation System. *Chang*, L., +, *TIM Oct. 2019 3751-3765* 

Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. *Mayer, P., +, TIM July 2019 2346-2355* 

# Geophysical techniques

A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. de Morais Franca, M.B., +, TIM Feb. 2019 606-613

Design of Cable Parallel Air-Core Coil Sensor to Reduce Motion-Induced Noise in Helicopter Transient Electromagnetic System. *Liu*, F., +, *TIM Feb.* 2019 525-532

Design of Magnetic Resonance Sounding Antenna and Matching Circuit for the Risk Detection of Tunnel Water-Induced Disasters. Yi, X., +, TIM Dec. 2019 4945-4953

INS/CNS Integrated Navigation Based on Corrected Infrared Earth Measurement. Gou, B., +, TIM Sept. 2019 3358-3366

PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. *Chakraborty, M.*, +, *TIM Jan. 2019 189-196* 

Wireless Sensor Network System for Landslide Monitoring and Warning. Giri, P., +, TIM April 2019 1210-1220

#### Geriatrics

Gait Nonlinear Patterns Related to Parkinson's Disease and Age. *Lahmiri*, *S.*, *TIM July 2019 2545-2551* 

#### Giant magnetoresistance

Eddy Current Testing Probe Based on Double-Coil Excitation and GMR Sensor. Bernieri, A., +, TIM May 2019 1533-1542

#### Glass fibers

An Optical Sampling System for Distributed Atmospheric Particulate Matter. *Lombardo, L.*, +, *TIM July 2019 2396-2403* 

#### Glass products

Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou, X.*, +, *TIM Nov. 2019 4253-4267* 

# **Global Positioning System**

Evaluation of Experimental GNSS and 10-DOF MEMS IMU Measurements for Train Positioning. *Otegui, J.*, +, *TIM Jan. 2019 269-279* 

Informational Framework for Minimalistic Visual Odometry on Outdoor Robot. Al Hage, J., +, TIM Aug. 2019 2988-2995

Software-Defined Radio GNSS Instrumentation for Spoofing Mitigation: A Review and a Case Study. *Schmidt, E., +, TIM Aug. 2019 2768-2784* 

#### Gold

Highly Dispersion Tailored Property of Novel Class of Multimode Surface Plasmon Resonance Biosensor Assisted by Teflon and Metamaterial Layers. *Raghuwanshi, S.K.*, +, *TIM Aug. 2019 2954-2963* 

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

Theoretical Analysis of Sensitivity Enhancement by Graphene Usage in Optical Fiber Surface Plasmon Resonance Sensors. *Melo, A.A.d.*, +, *TIM May 2019 1554-1560* 

# **Gradient methods**

A Self-Gap-Correction Method for Accurate Permittivity Measurement Using the Hybrid Optimization Algorithm. *Xu*, *H*., +, *TIM June 2019 1781-1787* 

A Stochastic Optimization Approach to Magnetometer Calibration With Gradient Estimates Using Simultaneous Perturbations. *Tahir, M.*, +, *TIM Oct. 2019 4152-4161* 

Classification of Manufacturing Defects in Multicrystalline Solar Cells With Novel Feature Descriptor. Su, B., +, TIM Dec. 2019 4675-4688

Gradient Descent Optimization-Based Self-Alignment Method for Stationary SINS. Li, J., +, TIM Sept. 2019 3278-3286

## Graph theory

A Robust Modulation Classification Method for PSK Signals Using Random Graphs. *Eldemerdash, Y.A.*, +, *TIM Feb. 2019 642-644* 

Gas-Liquid Flow Pattern Analysis Based on Graph Connectivity and Graph-Variate Dynamic Connectivity of ERT. *Tan, C.*, +, *TIM May 2019 1590-1601* 

# Graphene

Establishing a New Form of Primary Impedance Standard at Millimeter-Wave Frequencies. Azeez, Y.F., +, TIM Jan. 2019 294-296

Graphene Devices for Tabletop and High-Current Quantized Hall Resistance Standards. *Rigosi, A.F.*, +, *TIM June 2019 1870-1878* 

Theoretical Analysis of Sensitivity Enhancement by Graphene Usage in Optical Fiber Surface Plasmon Resonance Sensors. *Melo, A.A.d.*, +, *TIM May 2019 1554-1560* 

# Graphene compounds

Highly Sensitive SPR Biosensor Based on Graphene Oxide and Staphylococcal Protein A Co-Modified TFBG for Human IgG Detection. *Wang, Q.*, +, *TIM Sept. 2019 3350-3357* 

Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. *Acharyya*, D., +, TIM Aug. 2019 3004-3011

# Graphical user interfaces

A Multisignal Wavelet Variance-Based Framework for Inertial Sensor Stochastic Error Modeling. *Radi*, A., +, *TIM Dec.* 2019 4924-4936

#### Gravity

Gravity Disturbance Compensation for Inertial Navigation System. *Chang*, L., +, *TIM Oct.* 2019 3751-3765

#### Greedy algorithms

An Efficient and Accurate Link Latency Monitoring Method for Low-Latency Software-Defined Networks. Liao, L., +, TIM Feb. 2019 377-391

Effective Landmark Placement for Robot Indoor Localization With Position Uncertainty Constraints. *Magnago*, V., +, *TIM Nov.* 2019 4443-4455

### Green's function methods

Nondestructive Evaluation of Microwave-Penetrable Pipes by Synthetic Aperture Imaging Enhanced by Full-Wave Field Propagation Model. *Laviada*, *J.*, +, *TIM April 2019 1112-1119* 

#### Grey systems

Filtering for Drift Data of a Laser Doppler Velocimeter Based on Metabolic Time-Series—Grey Model. Wang, Q., +, TIM July 2019 2552-2559

#### Ground penetrating radar

Nondestructive Testing of Nonmetallic Pipelines Using Microwave Reflectometry on an In-Line Inspection Robot. *Carrigan*, *T.D.*, +, *TIM Feb. 2019* 586-594

#### **Ground states**

Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants. *Constantin, F.L., TIM June 2019 2151-2159* 

#### Groundwater

Design of Magnetic Resonance Sounding Antenna and Matching Circuit for the Risk Detection of Tunnel Water-Induced Disasters. Yi, X., +, TIM Dec. 2019 4945-4953

# Gyromagnetic ratio

A Fast Identification on the Spin-Exchange Relaxation-Free Regime of Atomic Magnetometer Exploiting Measurement on Gyromagnetic Ratio. *Zhang, X.*, +, *TIM April 2019 1157-1164* 

#### Gyroscopes

A New Method for Calibrating Nonlinear Coefficients of PIGA on Linear Vibrator. Ren, S., +, TIM Aug. 2019 2898-2906

Inertial Sensor-Based Respiration Analysis. Karacocuk, G., +, TIM Nov. 2019 4268-4275

Inertial Sensor-Based Respiration Analysis. Karacocuk, G., +, TIM Nov. 2019 4268-4275

On-Line Measurement of Dynamic Tilt Angle by Compensating Gyroscope Drift Error. *Shi*, *L.*, +, *TIM Sept. 2019 3244-3252* 

Wireless Sensor Network System for Landslide Monitoring and Warning. Giri, P., +, TIM April 2019 1210-1220

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# Hall effect transducers

AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K. Kucera, J., +, TIM June 2019 2106-2112

## Hankel matrices

Amplitude Estimation and Source Separation for Harmonics Within Two Mixtures Based on a Min-Rank Criterion. *Yang, Y.*, +, *TIM Dec. 2019* 4618-4628

### Hard disk

An Enhanced Trace Ratio Linear Discriminant Analysis for Fault Diagnosis: An Illustrated Example Using HDD Data. *Yang, A.*, +, *TIM Dec. 2019* 4629-4639

### Harmonic analysis

Harmonics Effects on Microwave Power Measurement Using Diode Sensors. Drazil, K., +, TIM June 2019 1852-1859

Josephson Arbitrary Waveform Synthesizer as a Reference Standard for the Measurement of the Phase of Harmonics in Distorted Waveforms. *Georga-kopoulos*, D., +, TIM June 2019 1927-1934

# Harmonic distortion

A Novel Approach for the Error Correction of CT in the Presence of Harmonic Distortion. *Ballal, M.S.*, +, *TIM Oct. 2019 4015-4027* 

Characterization of PXI-Based Generators for Impedance Measurement Setups. *Miroslaw*, M., +, *TIM June 2019 1806-1813* 

Harmonic Distortion Compensation in Voltage Transformers for Improved Power Quality Measurements. Faifer, M., +, TIM Oct. 2019 3823-3830

#### Harmonic generation

Investigation of Material Nonlinearity Measurements Using the Third-Harmonic Generation. *Zhang, S.*, +, *TIM Oct. 2019 3635-3646* 

#### Harmonic oscillators

A Disturbance Rejection Method for Beam Balance Oscillation Period Measurement. *Qian, L.*, +, *TIM June 2019 1973-1981* 

# Harmonic oscillators (circuits)

FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386* 

#### Hazards

Health Assessment Method for Electronic Components Subject to Condition Monitoring and Hard Failure. Zhao, S., +, TIM Jan. 2019 138-150

#### Health care

Calibration of Vision-Based Measurement of Pain Intensity With Multiple Expert Observers. Casti, P., +, TIM July 2019 2442-2450

Trip-Based Measures of Naturalistic Driving: Considerations and Connections With Cognitive Status in Older Adult Drivers. Howcroft, J., +, TIM July 2019 2451-2459

Video-Based Heart Rate Measurement: Recent Advances and Future Prospects. Chen, X., +, TIM Oct. 2019 3600-3615

#### **Heat conduction**

A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. de Morais Franca, M.B., +, TIM Feb. 2019 606-613

#### Heat exchangers

Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *Aranzabal*, N., +, *TIM April 2019 1062-1070* 

#### Heat measurement

A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. de Morais Franca, M.B., +, TIM Feb. 2019 606-613

#### Heat radiation

Autorange Thermal Sigma–Delta Converter for Incident Radiation Measurement. Vitorino, B.A.F., +, TIM March 2019 774-781

### Height measurement

Height Measurement in Seamless Indoor/Outdoor Infrastructure-Free Navigation. Rantanen, J., +, TIM April 2019 1199-1209

# Helicopters

Design of Cable Parallel Air-Core Coil Sensor to Reduce Motion-Induced Noise in Helicopter Transient Electromagnetic System. *Liu, F., +, TIM Feb.* 2019 525-532

### Helium

QCM-Micropillar-Based Coupled Resonators in the Detection of Gas Mass Flow Rates. *Kashan, M.A.M.*, +, *TIM Jan. 2019 303-305* 

# Hermetic seals

Planar Multijunction Thermal Converters With Increased Sensitivity Operated in Hermetically Sealed Housings Filled With Noble Gas. *Funck, T.*, +, *TIM June 2019 2003-2006* 

# **Hidden Markov models**

An Inhaler Tracking System Based on Acoustic Analysis: Hardware and Software. Xie, W., +, TIM Nov. 2019 4472-4480

## High electron mobility transistors

Direct *E*-Field Measurement and Imaging of Oscillations Within Power Amplifiers. *Urbonas, J., +, TIM Aug. 2019 2971-2978* 

## Higher order statistics

Fault Detection for Rolling-Element Bearings Using Multivariate Statistical Process Control Methods. *Jin, X.*, +, *TIM Sept. 2019 3128-3136* 

# Hilbert transforms

A New Method With Hilbert Transform and Slip-SVD-Based Noise-Suppression Algorithm for Noisy Power Quality Monitoring. *Wang, Y., +, TIM April* 2019 987-1001

A Robust Pulse Onset and Peak Detection Method for Automated PPG Signal Analysis System. Vadrevu, S., +, TIM March 2019 807-817

Reduced Leakage Synchrophasor Estimation: Hilbert Transform Plus Interpolated DFT. Frigo, G., +, TIM Oct. 2019 3468-3483

Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019 2819-2829* 

# Holography

Point Cloud and 3-D Surface Reconstruction Using Cylindrical Millimeter-Wave Holography. *Gao, J.*, +, *TIM Dec. 2019 4765-4778* 

#### Horn antennas

Measurement System for Millimeter-Wave Antennas With Distributed External Local Oscillators and Mixers. Kang, N., +, TIM June 2019 1967-1972

On the One-Antenna Gain Measurement Method in Probe Station Environment at mm-Wave Frequencies. *Zheng, J.*, +, *TIM Nov. 2019 4510-4517* 

Uncertainty Analysis of Far-Field Gain Measurement of DRGH Using the Single-Antenna Method and Amplitude Center Distance. *Matsukawa*, S., +, TIM June 2019 1756-1764

#### Hough transforms

A CNN-Based Defect Inspection Method for Catenary Split Pins in High-Speed Railway. Zhong, J., +, TIM Aug. 2019 2849-2860

Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou, X.*, +, *TIM Nov. 2019 4253-4267* 

Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform. *Cortes-Osorio, J.A.*, +, *TIM Oct. 2019 4038-4050* 

#### **Humidity measurement**

An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836

# **Humidity sensors**

An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836

### Hybrid electric vehicles

Moving Photovoltaic Installations: Impacts of the Sampling Rate on Maximum Power Point Tracking Algorithms. Schuss, C., +, TIM May 2019 1485-1493

## Hydraulic systems

Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network. *Jin, Y., +, TIM April 2019 1026-1034* 

# Hydrogen ions

Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants. *Constantin, F.L., TIM June 2019 2151-2159* 

# Hydrological equipment

Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. Mayer, P., +, TIM July 2019 2346-2355

### Hyperfine structure

Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants. *Constantin, F.L., TIM June 2019 2151-2159* 

# Hyperspectral imaging

A Hyperspectral Imaging Instrumentation Architecture Based on Accessible Optical Disc Technology and Frequency-Domain Analyses. *Brodie, C.H.*, +, *TIM July 2019 2531-2538* 

Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network. Wei, X., +, TIM Nov. 2019 4481-4492

Ι

# Ice

Field Study of LWC and MVD Using the Droplet Imaging Instrument. Rydblom, S., +, TIM Feb. 2019 614-622

Signal Processing for Capacitive Ice Sensing: Electrode Topology and Algorithm Design. *Neumayer, M.*, +, *TIM May 2019 1458-1466* 

### Identification

Wiener-Hammerstein System Identification: A Fast Approach Through Spearman Correlation. Shaikh, M.A.H., +, TIM May 2019 1628-1636

## IEC standards

A New Vibration Testing Platform for Electronic Current Transformers. *Li*, *Z.*, +, *TIM March 2019 704-712* 

Design and Evaluation of a USB Isolator for Medical Instrumentation. Gonzalez-Briceno, G., +, TIM March 2019 797-806

Overcoming Frequency Response Measurements of Voltage Transformers: An Approach Based on Quasi-Sinusoidal Volterra Models. *Faifer, M.*, +, *TIM Aug. 2019 2800-2807* 

# **IEEE publishing**

2019 List of Reviewers. *TIM Dec.* 2019 4957-5001 Errata for Reviewers List 2018. *TIM Oct.* 2019 3796

#### **IEEE standards**

Field Measurement of Frequency and ROCOF in the Presence of Phase Steps. Wright, P.S., +, TIM June 2019 1688-1695

Reduced Leakage Synchrophasor Estimation: Hilbert Transform Plus Interpolated DFT. Frigo, G., +, TIM Oct. 2019 3468-3483

### Image capture

A Novel Stereo Vision Measurement System Using Both Line Scan Camera and Frame Camera. *Liu*, Z., +, *TIM Oct. 2019 3563-3575* 

High-Density Large-Scale TMR Sensor Array for Magnetic Field Imaging. Ye, C., +, TIM July 2019 2594-2601

#### Image classification

Binary Volumetric Convolutional Neural Networks for 3-D Object Recognition. *Ma*, *C*., +, *TIM Jan*. 2019 38-48

Classification of Manufacturing Defects in Multicrystalline Solar Cells With Novel Feature Descriptor. Su, B., +, TIM Dec. 2019 4675-4688

Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning. *Kang, G.*, +, *TIM Aug. 2019 2679-2690* 

Generalized Completed Local Binary Patterns for Time-Efficient Steel Surface Defect Classification. *Luo*, *Q.*, +, *TIM March* 2019 667-679

Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network. Wei, X., +, TIM Nov. 2019 4481-4492

Surface Defects Detection Based on Adaptive Multiscale Image Collection and Convolutional Neural Networks. Sun, J., +, TIM Dec. 2019 4787-4797

# Image coding

A Robust and Rapid Camera Calibration Method by One Captured Image. Zhang, J., +, TIM Oct. 2019 4112-4121

Person Recognition Using 3-D Palmprint Data Based on Full-Field Sinusoidal Fringe Projection. *Bai*, X., +, *TIM Sept. 2019 3287-3298* 

#### Image color analysis

A Novel Stereo Vision Measurement System Using Both Line Scan Camera and Frame Camera. *Liu, Z., +, TIM Oct. 2019 3563-3575* 

Effective and Efficient Photo-Based PM2.5 Concentration Estimation. *Yue*, G., +, TIM Oct. 2019 3962-3971

Pixels and 3-D Points Alignment Method for the Fusion of Camera and LiDAR Data. Xie, S., +, TIM Oct. 2019 3661-3676

RGB-DI Images and Full Convolution Neural Network-Based Outdoor Scene Understanding for Mobile Robots. *Qiu*, *Z.*, +, *TIM Jan. 2019 27-37* 

# Image denoising

Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning. *Kang*, *G*., +, *TIM Aug.* 2019 2679-2690

Effect of Instrument Frequency Uncertainty on Wideband Microwave Synthetic Aperture Radar Images. *Horst, M.J.*, +, *TIM Jan. 2019 151-159* 

Image Fusion Using Adjustable Non-subsampled Shearlet Transform. *Vishwakarma, A.*, +, *TIM Sept. 2019 3367-3378* 

Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. *Yin, M.*, +, *TIM Jan.* 2019 49-64

Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

## Image enhancement

k-Space-Based Enhancement of Pulmonary Hyperpolarized <sup>129</sup>Xe Ventilation Images. Deng, H., +, TIM Oct. 2019 3950-3961

Nondestructive Evaluation of Microwave-Penetrable Pipes by Synthetic Aperture Imaging Enhanced by Full-Wave Field Propagation Model. Laviada, J., +, TIM April 2019 1112-1119

# Image filtering

An Optical Sampling System for Distributed Atmospheric Particulate Matter. *Lombardo, L.*, +, *TIM July 2019 2396-2403* 

Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou, X.*, +, *TIM Nov. 2019 4253-4267* 

Exposure Measurement and Fusion via Adaptive Multiscale Edge-Preserving Smoothing. Que, Y., +, TIM Dec. 2019 4663-4674

PAC Interaction Inspection Using Real-Time Contact Point Tracking. Shen, Y, +, TIM Oct. 2019 4051-4064

#### Image fusion

- A Multiview Discriminant Feature Fusion-Based Nonlinear Process Assessment and Diagnosis: Application to Medical Diagnosis. *Hazarika*, A., +, *TIM July 2019 2498-2506*
- Exposure Measurement and Fusion via Adaptive Multiscale Edge-Preserving Smoothing. Que, Y., +, TIM Dec. 2019 4663-4674
- Image Fusion Using Adjustable Non-subsampled Shearlet Transform. Vishwakarma, A., +, TIM Sept. 2019 3367-3378
- Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network. Wei, X., +, TIM Nov. 2019 4481-4492
- Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. Yin, M., +, TIM Jan. 2019 49-64
- Multimodal Sensor Medical Image Fusion Based on Local Difference in Non-Subsampled Domain. Kong, W., +, TIM April 2019 938-951

#### Image matching

- 3-D Ultrasound Palmprint Recognition System Based on Principal Lines Extracted at Several Under Skin Depths. *Iula*, A., +, *TIM Dec.* 2019 4653-4662
- A Novel Stereo Vision Measurement System Using Both Line Scan Camera and Frame Camera. Liu, Z., +, TIM Oct. 2019 3563-3575
- Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou, X.*, +, *TIM Nov. 2019 4253-4267*
- Characterization of Biometric Template Aging in a Multiyear, Multivendor Longitudinal Fingerprint Matching Study. *Harvey, J.*, +, *TIM April 2019* 1071-1079
- Person Recognition Using 3-D Palmprint Data Based on Full-Field Sinusoidal Fringe Projection. *Bai*, X., +, *TIM Sept. 2019 3287-3298*
- Real-Time Image-Based Defect Inspection System of Internal Thread for Nut. Lin, C., +, TIM Aug. 2019 2830-2848

#### Image motion analysis

- A Novel Global Localization Approach Based on Structural Unit Encoding and Multiple Hypothesis Tracking. Gao, H., +, TIM Nov. 2019 4427-4442
- Performance Analysis of the PMD Camboard Picoflexx Time-of-Flight Camera for Markerless Motion Capture Applications. *Pasinetti, S.*, +, *TIM Nov.* 2019 4456-4471
- Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform. *Cortes-Osorio, J.A.*, +, *TIM Oct. 2019 4038-4050*

### **Image processing**

- A Hyperspectral Imaging Instrumentation Architecture Based on Accessible Optical Disc Technology and Frequency-Domain Analyses. *Brodie, C.H.*, +, *TIM July 2019 2531-2538*
- Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131
- Online Precise Motion Measurement of 3-DOF Nanopositioners Based on Image Correlation. *Li*, *H*., +, *TIM March 2019 782-790*
- Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. *Zhao*, *J.*, +, *TIM Sept. 2019 3268-3277*
- Radiometric Calibration of Digital Counts of Infrared Thermal Cameras. Gonzalez-Chavez, O., +, TIM Nov. 2019 4387-4399
- Vision-Based Measurement of Dust Concentration by Image Transmission. Li, G., +, TIM Oct. 2019 3942-3949

# Image reconstruction

- 3-D Computational Ghost Imaging With Extended Depth of Field for Measurement. *Yang, Z.*, +, *TIM Dec. 2019 4906-4912*
- 3-D Hemorrhage Imaging by Cambered Magnetic Induction Tomography. *Xiao*, Z., +, *TIM July 2019 2460-2468*
- A Novel Sensitivity Matrix Construction Method for Ultrasonic Tomography Based on Simulation Studies. Li, N., +, TIM Oct. 2019 3548-3562
- A Novel Stereo Vision Measurement System Using Both Line Scan Camera and Frame Camera. Liu, Z., +, TIM Oct. 2019 3563-3575
- A Robust Inclusion Boundary Reconstructor for Electrical Impedance Tomography With Geometric Constraints. Ren, S., +, TIM March 2019 762-773
- Development of a Novel Linear ERT Sensor to Measure Surface Deposits. Ren, Z., +, TIM March 2019 754-761
- Direct Image Reconstruction for Electrical Capacitance Tomography Using Shortcut D-Bar Method. Zhao, J., +, TIM Feb. 2019 483-492

- Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan, Z.*, +, *TIM Feb. 2019 462-473*
- Fast Fourier-Based Implementation of Synthetic Aperture Radar Algorithm for Multistatic Imaging System. Abbasi, M., +, TIM Sept. 2019 3339-3349
- Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. *Yin, M.*, +, *TIM Jan.* 2019 49-64
- Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy. Wei, Z., +, TIM Jan. 2019 197-205
- Off-the-Shelf Measurement Setup for Compressive Imaging. *Ralasic, I.*, +, *TIM Feb. 2019 502-511*
- Performance Analysis of the PMD Camboard Picoflexx Time-of-Flight Camera for Markerless Motion Capture Applications. *Pasinetti, S.*, +, *TIM Nov. 2019 4456-4471*
- Point Cloud and 3-D Surface Reconstruction Using Cylindrical Millimeter-Wave Holography. *Gao, J.*, +, *TIM Dec. 2019 4765-4778*
- Sparse Reconstruction-Based Thermal Imaging for Defect Detection. *Roy*, D., +, *TIM Nov. 2019 4550-4558*
- The ACE1 Electrical Impedance Tomography System for Thoracic Imaging. Mellenthin, M.M., +, TIM Sept. 2019 3137-3150

#### **Image registration**

A Novel Stereo Vision Measurement System Using Both Line Scan Camera and Frame Camera. *Liu*, Z., +, *TIM Oct.* 2019 3563-3575

#### **Image representation**

- A Robust and Rapid Camera Calibration Method by One Captured Image. Zhang, J., +, TIM Oct. 2019 4112-4121
- Exposure Measurement and Fusion via Adaptive Multiscale Edge-Preserving Smoothing. Que, Y., +, TIM Dec. 2019 4663-4674
- Generalized Completed Local Binary Patterns for Time-Efficient Steel Surface Defect Classification. *Luo*, *Q*., +, *TIM March* 2019 667-679
- Image Fusion Using Adjustable Non-subsampled Shearlet Transform. Vishwakarma, A., +, TIM Sept. 2019 3367-3378
- Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. *Yin, M.*, +, *TIM Jan.* 2019 49-64

# Image resolution

- A Thermal Infrared Face Database With Facial Landmarks and Emotion Labels. *Kopaczka, M.*, +, *TIM May 2019 1389-1401*
- Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light. *Dashpute*, A., +, *TIM Jan.* 2019 160-168
- Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. Horst, M.J., +, TIM Nov. 2019 4400-4411
- Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan, Z.,* +, *TIM Feb. 2019 462-473*
- High-Density Large-Scale TMR Sensor Array for Magnetic Field Imaging. Ye, C., +, TIM July 2019 2594-2601
- Off-the-Shelf Measurement Setup for Compressive Imaging. Ralasic, I., +, TIM Feb. 2019 502-511
- Tracking a Golf Ball With High-Speed Stereo Vision System. Wang, S., +, TIM Aug. 2019 2742-2754

## Image restoration

- Effect of Instrument Frequency Uncertainty on Wideband Microwave Synthetic Aperture Radar Images. Horst, M.J., +, TIM Jan. 2019 151-159
- Effects of Aperture Diameter on Image Blur of CMOS Image Sensor With Pixel Apertures. *Choi, B., +, TIM May 2019 1382-1388*
- Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform. Cortes-Osorio, J.A., +, TIM Oct. 2019 4038-4050

# Image retrieval

Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy. Wei, Z., +, TIM Jan. 2019 197-205

### Image sampling

- An Automated System for Position Monitoring and Correction of Chord-Based Rail Corrugation Measuring Points. Chen, L., +, TIM Jan. 2019 250,260
- Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy. Wei, Z., +, TIM Jan. 2019 197-205

#### **Image scanners**

Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy. Wei, Z., +, TIM Jan. 2019 197-205

#### Image segmentation

- A Coarse-to-Fine Model for Rail Surface Defect Detection. Yu, H., +, TIM March 2019 656-666
- A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014*
- Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou, X.*, +, *TIM Nov. 2019 4253-4267*
- Effective and Efficient Blind Quality Evaluator for Contrast Distorted Images. Yue, G., +, TIM Aug. 2019 2733-2741
- Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. *Yin, M.*, +, *TIM Jan.* 2019 49-64
- RGB-DI Images and Full Convolution Neural Network-Based Outdoor Scene Understanding for Mobile Robots. *Qiu*, *Z.*, +, *TIM Jan. 2019 27-37*
- Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. *Pan, D.*, +, *TIM Oct.* 2019 3576-3588

#### Image sensors

- Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light. *Dashpute*, A., +, *TIM Jan.* 2019 160-168
- Disturbance Observer-Based Control of Tip-Tilt Mirror for Mitigating Telescope Vibrations. *Tang, T.*, +, *TIM Aug. 2019 2785-2791*
- Effects of Aperture Diameter on Image Blur of CMOS Image Sensor With Pixel Apertures. *Choi, B., +, TIM May 2019 1382-1388*
- Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan, Z.*, +, *TIM Feb. 2019 462-473*
- Output Power and Gain Monitoring in RF CMOS Class A Power Amplifiers by Thermal Imaging. *Perpina, X.*, +, *TIM Aug. 2019 2861-2870*

# Image sequences

- A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh, S.*, +, *TIM March* 2019 646-655
- Exposure Measurement and Fusion via Adaptive Multiscale Edge-Preserving Smoothing. Que, Y., +, TIM Dec. 2019 4663-4674
- Informational Framework for Minimalistic Visual Odometry on Outdoor Robot. Al Hage, J., +, TIM Aug. 2019 2988-2995
- Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. He, Q., +, TIM Oct. 2019 3456-3467
- PAC Interaction Inspection Using Real-Time Contact Point Tracking. Shen, Y., +, TIM Oct. 2019 4051-4064
- The Influence of Uncertainty Contributions on Deep Learning Architectures in Vision-Based Evaluation Systems. *Callari, G.*, +, *TIM July 2019 2425-2432*
- Tracking a Golf Ball With High-Speed Stereo Vision System. Wang, S., +, TIM Aug. 2019 2742-2754

# Image texture

- Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou, X., +, TIM Nov. 2019 4253-4267*
- Classification of Manufacturing Defects in Multicrystalline Solar Cells With Novel Feature Descriptor. Su, B., +, TIM Dec. 2019 4675-4688
- Generalized Completed Local Binary Patterns for Time-Efficient Steel Surface Defect Classification. Luo, Q., +, TIM March 2019 667-679
- Image Fusion Using Adjustable Non-subsampled Shearlet Transform. Vishwakarma, A., +, TIM Sept. 2019 3367-3378
- Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. *Pan, D.*, +, *TIM Oct.* 2019 3576-3588

# **Imaging**

3-D Computational Ghost Imaging With Extended Depth of Field for Measurement. Yang, Z., +, TIM Dec. 2019 4906-4912

#### Impact (mechanical)

Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors. *Waters, D.H.*, +, *TIM Feb.* 2019 595-605

#### **Impedance**

- TDR Prediction Method for PIM Distortion in Loose Contact Coaxial Connectors. Yang, H., +, TIM Dec. 2019 4689-4693
- Time-Domain Gating Applied to the Quantitative Evaluation of Soft Defects in Embedded Electric Cables. *Loete, F., TIM Nov. 2019 4368-4375*

#### Impedance matching

- A High-Sensitivity Resonant Tangential E-Probe With Loaded Improved Dipole and Embedded Integrated Balun. Wang, J., +, TIM Aug. 2019 3042-
- An Improved Match Method of Capacitive Divider for Measurement of Nanosecond-Range HV Pulses. Yu, B., +, TIM Oct. 2019 4146-4151
- Measurement Capability of Scanning Microwave Microscopy: Measurement Sensitivity Versus Accuracy. *Horibe*, M., +, *TIM June 2019 1774-1780*
- Measurement Method of Amplitude Ratios and Phase Differences Based on Power Detection Among Multiple Ports. *Choi, U.*, +, *TIM Dec. 2019* 4615-4617

#### **Impurities**

Electron Paramagnetic Resonance Study on <sup>28</sup>Si Single Crystal for the Future Realization of the Kilogram. *Mizushima, S., +, TIM June 2019 1879-1886* 

#### Inclusions

A Robust Inclusion Boundary Reconstructor for Electrical Impedance Tomography With Geometric Constraints. *Ren, S.*, +, *TIM March 2019* 762-773

#### Independent component analysis

- An Approach on MCSA-Based Fault Detection Using Independent Component Analysis and Neural Networks. *Garcia-Bracamonte, J.E.*, +, *TIM May 2019 1353-1361*
- Fault Detection for Rolling-Element Bearings Using Multivariate Statistical Process Control Methods. *Jin, X.*, +, *TIM Sept. 2019 3128-3136*

### **Indexes**

Measuring the Local and Global Variabilities in Body Sway by Nonlinear Poincaré Technology. *Zhang, S.*, +, *TIM Dec. 2019 4817-4824* 

# Indoor communication

Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking. *Tian*, *Q.*, +, *TIM Oct.* 2019 4028-4037

# Indoor environment

RFID 3-D Indoor Localization for Tag and Tag-Free Target Based on Interference. *Liu*, *M*., +, *TIM Oct. 2019 3718-3732* 

### **Indoor navigation**

- An Indoor Ultrasonic System for Autonomous 3-D Positioning. *Carotenuto*, R., +, TIM July 2019 2507-2518
- High-Accuracy Localization and Calibration for 5-DoF Indoor Magnetic Positioning Systems. *Hehn, M., +, TIM Oct. 2019 4135-4145*
- Indoor Localization on Smartphones Using Built-In Sensors and Map Constraints. *Xia*, H., +, *TIM April* 2019 1189-1198
- RSSI-Based Indoor Localization and Identification for ZigBee Wireless Sensor Networks in Smart Homes. *Bianchi, V.*, +, *TIM Feb. 2019 566-575*

### Indoor radio

- A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh, S.*, +, *TIM March* 2019 646-655
- Accurate Step Length Estimation for Pedestrian Dead Reckoning Localization Using Stacked Autoencoders. Gu, F., +, TIM Aug. 2019 2705-2713
- Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking. *Tian*, *Q*., +, *TIM Oct.* 2019 4028-4037
- Indoor Localization on Smartphones Using Built-In Sensors and Map Constraints. Xia, H., +, TIM April 2019 1189-1198
- Indoor Occupancy Awareness and Localization Using Passive Electric Field Sensing. *Tang, X.*, +, *TIM Nov. 2019 4535-4549*
- RFID 3-D Indoor Localization for Tag and Tag-Free Target Based on Interference. *Liu*, *M*., +, *TIM Oct. 2019 3718-3732*
- TOA Estimation of Chirp Signal in Dense Multipath Environment for Low-Cost Acoustic Ranging. Zhang, L., +, TIM Feb. 2019 355-367

#### Inductance

Resolution Enhancement in Directly Interfaced System for Inductive Sensors. Asif, A., +, TIM Oct. 2019 4104-4111

#### **Inductance measurement**

AC Voltage Measurements to 120 V With a Josephson Arbitrary Waveform Synthesizer and an Inductive Voltage Divider. *Georgakopoulos*, D., +, *TIM June 2019 1935-1940* 

Realization of Absolute Phase and AC Resistance of Current Shunts by Ratio Measurements. *Bergsten, T.*, +, *TIM June 2019 2041-2046* 

#### Induction motor drives

Novel Complex-Valued Stator Current-Based MRAS Estimators With Different Adaptation Mechanisms. Zerdali, E., +, TIM Oct. 2019 3793-3795

#### **Induction motors**

An Approach on MCSA-Based Fault Detection Using Independent Component Analysis and Neural Networks. Garcia-Bracamonte, J.E., +, TIM May 2019 1353-1361

Broken Rotor Bar Detection in Induction Motors Based on Air-Gap Rotational Magnetic Field Measurement. *Soleimani, Y.*, +, *TIM Aug. 2019* 2916-2925

Novel Complex-Valued Stator Current-Based MRAS Estimators With Different Adaptation Mechanisms. *Zerdali, E., +, TIM Oct. 2019 3793-3795* 

#### Inductive power transmission

Application of FRA to Improve the Design and Maintenance of Wireless Power Transfer Systems. *Kim, D.*, +, *TIM Nov. 2019 4313-4325* 

#### Inductive sensors

AC Voltage Measurements to 120 V With a Josephson Arbitrary Waveform Synthesizer and an Inductive Voltage Divider. *Georgakopoulos*, D., +, TIM June 2019 1935-1940

Time-Variant In-Circuit Impedance Monitoring Based on the Inductive Coupling Method. Zhao, Z., +, TIM Jan. 2019 169-176

# **Industrial** control

Chaotic Encryption Applied to Optical Ethernet in Industrial Control Systems. *Perez-Resa*, A., +, *TIM Dec.* 2019 4876-4886

## Industrial robots

Monocular Vision-Based Parameter Estimation for Mobile Robotic Painting. Zhao, Q., +, TIM Oct. 2019 3589-3599

### **Inertial navigation**

Evaluation of Experimental GNSS and 10-DOF MEMS IMU Measurements for Train Positioning. *Otegui*, J., +, *TIM Jan. 2019 269-279* 

Gradient Descent Optimization-Based Self-Alignment Method for Stationary SINS. Li, J., +, TIM Sept. 2019 3278-3286

Gravity Disturbance Compensation for Inertial Navigation System. *Chang*, L., +, *TIM Oct. 2019 3751-3765* 

In-Motion Coarse Alignment Based on the Vector Observation for SINS. Zhang, T., +, TIM Oct. 2019 3740-3750

INS/CNS Integrated Navigation Based on Corrected Infrared Earth Measurement. Gou, B., +, TIM Sept. 2019 3358-3366

### Inertial sensors

Inertial Sensor-Based Respiration Analysis. Karacocuk, G., +, TIM Nov. 2019 4268-4275

### **Inertial systems**

Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking. Dai, H., +, TIM Sept. 2019 3379-3386

# Information filters

Toward High Integrity Personal Localization System Based on Informational Formalism. *Daher, M.*, +, *TIM Nov. 2019 4590-4599* 

# Information theory

Dynamic Harmonic Synchrophasor Estimator Based on Sinc Interpolation Functions. Chen, L., +, TIM Sept. 2019 3054-3065

Toward High Integrity Personal Localization System Based on Informational Formalism. *Daher, M.*, +, *TIM Nov. 2019 4590-4599* 

# **Infrared detectors**

A Thermal Infrared Face Database With Facial Landmarks and Emotion Labels. *Kopaczka, M.*, +, *TIM May 2019 1389-1401* 

INS/CNS Integrated Navigation Based on Corrected Infrared Earth Measurement. Gou, B., +, TIM Sept. 2019 3358-3366

Optical Transition-Edge Sensors: Dependence of System Detection Efficiency on Wavelength. *Hattori, K.*, +, *TIM June 2019 2253-2259* 

Output Power and Gain Monitoring in RF CMOS Class A Power Amplifiers by Thermal Imaging. *Perpina, X.*, +, *TIM Aug. 2019 2861-2870* 

Radiometric Calibration of Digital Counts of Infrared Thermal Cameras. Gonzalez-Chavez, O., +, TIM Nov. 2019 4387-4399

#### Infrared imaging

A Thermal Infrared Face Database With Facial Landmarks and Emotion Labels. *Kopaczka, M.*, +, *TIM May 2019 1389-1401* 

Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures. Foudazi, A., +, TIM Feb. 2019 576-585

Comparison Study of Different Features for Pocket Length Quantification of Angular Defects Using Eddy Current Pulsed Thermography. *Zhu*, *J*., +, *TIM May 2019 1373-1381* 

Detecting Defects in Porcelain Postinsulator Coated With Room Temperature Vulcanized Silicone Rubber by Pulsed Thermography. *Liu*, *L.*, +, *TIM Jan. 2019 225-233* 

Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. He, Q., +, TIM Oct. 2019 3456-3467

Output Power and Gain Monitoring in RF CMOS Class A Power Amplifiers by Thermal Imaging. *Perpina*, X., +, *TIM Aug. 2019 2861-2870* 

Radiometric Calibration of Digital Counts of Infrared Thermal Cameras. Gonzalez-Chavez, O., +, TIM Nov. 2019 4387-4399

Sparse Reconstruction-Based Thermal Imaging for Defect Detection. *Roy*, D., +, *TIM Nov. 2019 4550-4558* 

Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. *Pan, D.*, +, *TIM Oct.* 2019 3576-3588

#### Infrared spectra

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana*, M., +, TIM Dec. 2019 4853-4863

Magnetic Field Sensing Based on SPR Optical Fiber Sensor Interacting With Magnetic Fluid. *Zhou, X.*, +, *TIM Jan. 2019 234-239* 

### Injuries

Design of a Novel Elastic Torque Sensor for Hand Injuries Rehabilitation Based on Bowden Cable. *Zhang, F.*, +, *TIM Sept. 2019 3184-3192* 

Measuring the Maximum Power of an ex vivo Engineered Muscle Tissue With Isovelocity Shortening Technique. Pisu, S., +, TIM July 2019 2404-2411

### Ink jet printing

A Novel Sensing Methodology to Detect Furfural in Water, Exploiting MIPs, and Inkjet-Printed Optical Waveguides. *Cennamo, N.*, +, *TIM May 2019 1582-1589* 

# Inspection

Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures. Foudazi, A., +, TIM Feb. 2019 576-585

Automated Visual Inspection of Glass Bottle Bottom With Saliency Detection and Template Matching. *Zhou, X.*, +, *TIM Nov. 2019 4253-4267* 

Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning. *Kang, G.*, +, *TIM Aug. 2019 2679-2690* 

Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. *Wang, H.*, +, *TIM Oct. 2019 3536-3547* 

Fast Defect Inspection Based on Data-Driven Photometric Stereo. *Ren, M.*, +, *TIM April 2019 1148-1156* 

High-Density Large-Scale TMR Sensor Array for Magnetic Field Imaging. Ye, C., +, TIM July 2019 2594-2601

Nondestructive Testing of Nonmetallic Pipelines Using Microwave Reflectometry on an In-Line Inspection Robot. *Carrigan*, *T.D.*, +, *TIM Feb. 2019* 586-594

Real-Time Image-Based Defect Inspection System of Internal Thread for Nut. Lin, C., +, TIM Aug. 2019 2830-2848

# Instrument transformers

A New Vibration Testing Platform for Electronic Current Transformers. *Li*, Z., +, *TIM March* 2019 704-712

A Synchronized Current-Comparator Bridge for the Calibration of Analog Merging Units. *Djokic, B., +, TIM June 2019 1955-1960* 

Compensation of Nonlinearity of Voltage and Current Instrument Transformers. Cataliotti, A., +, TIM May 2019 1322-1332

Compensation of Systematic Measurement Errors in a PMU-Based Monitoring System for Electric Distribution Grids. *Pegoraro, P.A.*, +, *TIM Oct.* 2019 3871-3882

Harmonic Distortion Compensation in Voltage Transformers for Improved Power Quality Measurements. Faifer, M., +, TIM Oct. 2019 3823-3830

#### Instrumentation

Improving a Commodity Dust Sensor to Enable Particle Size Analysis. *Pedersini, F., TIM Jan. 2019 177-188* 

### Instrumentation and measurement

Special Issue for I<sup>2</sup>MTC 2018. Rapuano, S., +, TIM May 2019 1235-1237

#### Insulated gate bipolar transistors

Measurements of Parameters of the Thermal Model of the IGBT Module. Gorecki, K., +, TIM Dec. 2019 4864-4875

### **Insulating materials**

Effects of Mechanical Pressure on the Tangent Delta of MV Cable Joints. Ghaderi, A., +, TIM July 2019 2656-2658

#### Insulation

Quantitative Detection of Interfacial Air Gap in Insulation Equipment Based on Terahertz Wave Contrast Method. *Zhang*, Z., +, *TIM Dec. 2019 4896-4905* 

#### **Insulation testing**

Kerr Electro-Optic Sensor for Electric Field in Large-Scale Oil–Pressboard Insulation Structure. *Gao, C.*, +, *TIM Oct. 2019 3626-3634* 

#### **Insulators**

Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning. *Kang, G.*, +, *TIM Aug.* 2019 2679-2690

## Integrated circuit design

Ultralow-Power Synchronous Demodulation for Low-Level Sensor Signal Detection. *Maya-Hernandez*, *P.M.*, +, *TIM Oct. 2019 3514-3523* 

#### Integrated circuit metallization

A High-Frequency and High Spatial Resolution Probe Design for EMI Prediction. *Yang, R.*, +, *TIM Aug. 2019 3012-3019* 

# Integrated circuit modeling

Real-Time Prediction for IC Aging Based on Machine Learning. *Huang, K.*, +, *TIM Dec.* 2019 4756-4764

### Integrated circuit reliability

Real-Time Prediction for IC Aging Based on Machine Learning. *Huang, K.*, +, *TIM Dec. 2019 4756-4764* 

# **Integrated optics**

Measurement of Distorted Power-Frequency Electric Field With Integrated Optical Sensor. *Li*, *Z*., +, *TIM April 2019 1132-1139* 

Pseudohigh-Resolution Spectral Interrogation Scheme for Small Signals From FBG Sensors. *Lim, K., +, TIM Aug. 2019 2964-2970* 

# **Integrated optoelectronics**

An Optoelectronic Pulse Drive for Quantum Voltage Synthesizer. *Ireland, J.*, +, *TIM June 2019 2066-2071* 

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

### **Intelligent robots**

Monocular Vision-Based Parameter Estimation for Mobile Robotic Painting. Zhao, Q., +, TIM Oct. 2019 3589-3599

## Intelligent sensors

A Capacitive-Coupled Noncontact Probe for the Measurement of Conductivity of Liquids. *Tejaswini*, K.K., +, TIM May 2019 1602-1610

A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902

Indoor Occupancy Awareness and Localization Using Passive Electric Field Sensing. Tang, X., +, TIM Nov. 2019 4535-4549

On Smart Soccer Ball as a Head Impact Sensor. Stone, T., +, TIM Aug. 2019 2979-2987

# **Intensity modulation**

Uncertainty Assessment of Optical Distance Measurements at Micrometer Level Accuracy for Long-Range Applications. *Guillory, J.*, +, *TIM June* 2019 2260-2267

# Interface magnetism

Spincaloritronic Measurements: A Round Robin Comparison of the Longitudinal Spin Seebeck Effect. Sola, A., +, TIM June 2019 1765-1773

#### Interference

Localization of a Mobile Platform Equipped With a Rotating Magnetic Dipole Source. Sheinker, A., +, TIM Jan. 2019 116-128

### Interference suppression

A Novel PD Detection Technique for Use in GIS Based on a Combination of UHF and Optical Sensors. *Han, X.*, +, *TIM Aug. 2019 2890-2897* 

Impact of Noise Bandwidth on Noise Figure. Sheldon, A., +, TIM July 2019 2662-2664

Nonlinear Characterization and Distortion Mitigation in Six-Port Modulator. Pathak, C., +, TIM April 2019 1178-1188

#### Interferometers

A Dual-Interferometer-Based Angular Measurement System With Absolute Angle Recovery Method. Serrano Galvez, P., +, TIM March 2019 864-873

#### Intermodulation distortion

Compact Intermodulation Modulator for Phase Reference in Passive Intermodulation Measurements. Chen, X., +, TIM Dec. 2019 4612-4614

#### Intermodulation measurement

Compact Intermodulation Modulator for Phase Reference in Passive Intermodulation Measurements. Chen, X., +, TIM Dec. 2019 4612-4614

## **International Systems of Units**

Conference on Precision Electromagnetic Measurements (CPEM 2018). Allal, D., +, TIM June 2019 1652

### **Internet of Things**

Special Section on Sensors Applications Symposium. *Gupta*, G.S., +, TIM July 2019 2333-2334

Synchronization Uncertainty Versus Power Efficiency in LoRaWAN Networks. Rizzi, M., +, TIM April 2019 1101-1111

# Interpolation

Doppler Distortion Removal in Wayside Circular Microphone Array Signals. Ouyang, K., +, TIM May 2019 1238-1251

Dynamic Harmonic Synchrophasor Estimator Based on Sinc Interpolation Functions. Chen, L., +, TIM Sept. 2019 3054-3065

Measurement Uncertainty of Precise Interpolating Time Counters. *Szplet, R.*, +, *TIM Nov. 2019 4348-4356* 

New Measurement Algorithm for Supraharmonics Based on Multiple Measurement Vectors Model and Orthogonal Matching Pursuit. *Zhuang*, S., +, *TIM June 2019 1671-1679* 

Passive UHF-RFID Localization Based on the Similarity Measurement of Virtual Reference Tags. Mo, L., +, TIM Aug. 2019 2926-2933

Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling. *Kitzig, J.*, +, *TIM April 2019 1014-1025* 

Reduced Leakage Synchrophasor Estimation: Hilbert Transform Plus Interpolated DFT. Frigo, G., +, TIM Oct. 2019 3468-3483

# Inverse problems

Accurate Technique for Electrical Permittivity Measurement of Biological Tissue Specimens at Low Frequencies. *Hesabgar, S.M.*, +, *TIM July 2019* 2479-2490

Magnetic Source Imaging Using a Pulsed Optically Pumped Magnetometer Array. Borna, A., +, TIM Feb. 2019 493-501

Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy. Wei, Z., +, TIM Jan. 2019 197-205

# Inverse transforms

Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

## Ion beams

A Fluxgate-Based Approach for Ion Beam Current Measurement in ECRIS Beamline: Design and Preliminary Investigations. *Ando, B., +, TIM May 2019 1477-1484* 

### Ion sources

A Fluxgate-Based Approach for Ion Beam Current Measurement in ECRIS Beamline: Design and Preliminary Investigations. *Ando, B., +, TIM May 2019 1477-1484* 

# Iron

Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131

#### Iron alloys

A Novel Approach for the Error Correction of CT in the Presence of Harmonic Distortion. *Ballal, M.S.*, +, *TIM Oct. 2019 4015-4027* 

#### Iterative algorithms

A Current-Driven Six-Channel Potentiostat for Rapid Performance Characterization of Microbial Electrolysis Cells. *Molderez*, *T.R.*, +, *TIM Dec.* 2019 4694-4702

#### Iterative methods

- A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh, S.*, +, *TIM March* 2019 646-655
- An Indoor Ultrasonic System for Autonomous 3-D Positioning. *Carotenuto*, R., +, *TIM July 2019 2507-2518*
- CGAN-MBL for Reliability Assessment With Imbalanced Transmission Gear Data. Li, J., +, TIM Sept. 2019 3173-3183
- Comparative Study on Modeling Approaches of V-Shaped MEMS Temperature Sensors. *Cohen, Y.*, +, *TIM Oct. 2019 3766-3775*
- Direct Image Reconstruction for Electrical Capacitance Tomography Using Shortcut D-Bar Method. Zhao, J., +, TIM Feb. 2019 483-492
- Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131
- Joint Compensation of Jitter Noise and Time-Shift Errors in Multichannel Sampling System. *Araghi*, H., +, TIM Oct. 2019 3932-3941
- Line Impedance Estimation Based on Synchrophasor Measurements for Power Distribution Systems. *Pegoraro, P.A.*, +, *TIM April 2019 1002-1013*
- Linearized Bregman Iterations for Automatic Optical Fiber Fault Analysis. *Lunglmayr, M.*, +, *TIM Oct. 2019 3699-3711*
- Models for Synchrophasor With Step Discontinuities in Magnitude and Phase: Estimation and Performance. *Martins, M.B.*, +, *TIM June 2019* 2007-2014
- TOA Estimation of Chirp Signal in Dense Multipath Environment for Low-Cost Acoustic Ranging. Zhang, L., +, TIM Feb. 2019 355-367

J

## Jacobian matrices

Sensory Fusion of Magnetoinertial Data Based on Kinematic Model With Jacobian Weighted-Left-Pseudoinverse and Kalman-Adaptive Gains. Mihelj, M., +, TIM July 2019 2610-2620

# Jets

Torsional Balance for Simultaneous Evaluation of Thrust Force and Flow Velocity of Electrostatically Induced Ionic Wind. *Lee, J.R.*, +, *TIM Nov.* 2019 4518-4525

# Jitter

An Improved Match Method of Capacitive Divider for Measurement of Nanosecond-Range HV Pulses. Yu, B., +, TIM Oct. 2019 4146-4151

Asynchronous Optical Sampling for Laser-Based Vector Network Analysis on Coplanar Waveguides. Struszewski, P., +, TIM June 2019 2295-2302

Impact of Noise Bandwidth on Noise Figure. Sheldon, A., +, TIM July 2019 2662-2664

Joint Compensation of Jitter Noise and Time-Shift Errors in Multichannel Sampling System. *Araghi*, H., +, TIM Oct. 2019 3932-3941

# Josephson effect

- A Novel Method for Calibration of ADC Using JAWS. Sira, M., +, TIM June 2019 2091-2099
- AC Voltage Measurements to 120 V With a Josephson Arbitrary Waveform Synthesizer and an Inductive Voltage Divider. *Georgakopoulos*, D., +, TIM June 2019 1935-1940
- Josephson Arbitrary Waveform Synthesizer as a Reference Standard for the Measurement of the Phase of Harmonics in Distorted Waveforms. *Georga-kopoulos*, D., +, *TIM June 2019 1927-1934*

K

# Kalman filters

A Joint Filter Approach for Reliable Power System State Estimation. Yu, Y., +, TIM Jan. 2019 87-94

- A Novel Measurement Data Classification Algorithm Based on SVM for Tracking Closely Spaced Targets. Zhao, Z., +, TIM April 2019 1089-1100
- A Parallel Attitude-Heading Kalman Filter Without State-Augmentation of Model-Based Disturbance Components. *Lee, J.K., TIM July 2019 2668-2670*
- An Extended Kalman Filter for Fetal Heart Location Estimation During Doppler-Based Heart Rate Monitoring. *Hamelmann, P.*, +, *TIM Sept. 2019* 3221-3231
- Calibration and Characterization of a Magnetic Positioning System Using a Robotic Arm. Santoni, F., +, TIM May 2019 1494-1502
- Dynamic Frequency and Amplitude Estimation for Three-Phase Unbalanced Power Systems Using the Unscented Kalman Filter. Wu, C., +, TIM Sept. 2019 3387-3395
- Dynamic Offset Correction of Electromagnetic Flowmeters. *Linnert, M.A.*, +, *TIM May 2019 1284-1293*
- Evaluation of Experimental GNSS and 10-DOF MEMS IMU Measurements for Train Positioning. *Otegui, J.*, +, *TIM Jan. 2019 269-279*
- FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386*
- Informational Framework for Minimalistic Visual Odometry on Outdoor Robot. *Al Hage, J.*, +, *TIM Aug. 2019 2988-2995*
- Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501
- Recovering of Corrupted Ultrasonic Waves, for Determination of TOF Using the Zero-Crossing Detection Technique. *Fabiano dos Santos, J.C.*, +, *TIM Nov.* 2019 4234-4241
- Sensory Fusion of Magnetoinertial Data Based on Kinematic Model With Jacobian Weighted-Left-Pseudoinverse and Kalman-Adaptive Gains. Mihelj, M., +, TIM July 2019 2610-2620
- State Estimation of Slow-Rate Integrated Measurement Systems in the Presence of Parametric Uncertainties. *Salehi, Y., +, TIM Oct. 2019 3983-3991*
- The Kalman Filter Uncertainty Concept in the Possibility Domain. *Ferrero*, A., +, *TIM Nov. 2019 4335-4347*

# Kerr electro-optical effect

Kerr Electro-Optic Sensor for Electric Field in Large-Scale Oil–Pressboard Insulation Structure. *Gao, C.*, +, *TIM Oct. 2019 3626-3634* 

# **Kinematics**

Sensory Fusion of Magnetoinertial Data Based on Kinematic Model With Jacobian Weighted-Left-Pseudoinverse and Kalman-Adaptive Gains. Mihelj, M., +, TIM July 2019 2610-2620

 $\mathbf{L}$ 

### Laminar flow

3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications. S. B., P., +, TIM July 2019 2648-2655

## Laminates

Compact Intermodulation Modulator for Phase Reference in Passive Intermodulation Measurements. Chen, X., +, TIM Dec. 2019 4612-4614

## Laser applications in medicine

A New Device Based on Interferometric Optical Detection Method for Label-Free Screening of C-Reactive Protein. *Maigler, M.V.*, +, *TIM Sept.* 2019 3193-3199

## Laser stability

Asynchronous Optical Sampling for Laser-Based Vector Network Analysis on Coplanar Waveguides. Struszewski, P., +, TIM June 2019 2295-2302

# Laser variables measurement

Radiation-Pressure-Enabled Traceable Laser Sources at CW Powers up to 50 kW. Williams, P.A., +, TIM June 2019 1833-1839

### Laser velocimeters

Filtering for Drift Data of a Laser Doppler Velocimeter Based on Metabolic Time-Series—Grey Model. Wang, Q., +, TIM July 2019 2552-2559

## Lead

Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang, J.*, +, *TIM July 2019* 2387-2393

#### Lead acid batteries

Practical Current Distribution Measurement Systems for Lead Cells. *Harrison, H.T.*, +, *TIM Sept. 2019 3151-3165* 

#### Learning (artificial intelligence)

- A Multiview Discriminant Feature Fusion-Based Nonlinear Process Assessment and Diagnosis: Application to Medical Diagnosis. *Hazarika, A.*, +, *TIM July 2019 2498-2506*
- A Thermal Infrared Face Database With Facial Landmarks and Emotion Labels. *Kopaczka, M.*, +, *TIM May 2019 1389-1401*
- Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning. Kao, I., +, TIM Feb. 2019 310-324
- Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233*
- Automatic Generation of Synthetic LiDAR Point Clouds for 3-D Data Analysis. Wang, F., +, TIM July 2019 2671-2673
- Calibration of Vision-Based Measurement of Pain Intensity With Multiple Expert Observers. Casti, P., +, TIM July 2019 2442-2450
- CGAN-MBL for Reliability Assessment With Imbalanced Transmission Gear Data. Li, J., +, TIM Sept. 2019 3173-3183
- Characterization of S<sub>1</sub> and S<sub>2</sub> Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, *M.*, +, *TIM Sept. 2019 3211-3220*
- Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning. *Kang, G.*, +, *TIM Aug. 2019 2679-2690*
- Deep Nearest Class Mean Model for Incremental Odor Classification. Cheng, Y., +, TIM April 2019 952-962
- Low-order Nonlinear Finite-Impulse Response Soft Sensors for Ionic Electroactive Actuators Based on Deep Learning. *Ando, B., +, TIM May 2019* 1637-1646
- Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. *Acharyya*, D., +, TIM Aug. 2019 3004-3011
- On-Line Measurement of Dynamic Tilt Angle by Compensating Gyroscope Drift Error. Shi, L., +, TIM Sept. 2019 3244-3252
- Pilots' Fatigue Status Recognition Using Deep Contractive Autoencoder Network. Wu, E.Q., +, TIM Oct. 2019 3907-3919
- Real-Time Prediction for IC Aging Based on Machine Learning. *Huang, K.*, +, *TIM Dec.* 2019 4756-4764
- Robust Visual Detection and Tracking Strategies for Autonomous Aerial Refueling of UAVs. Sun, S., +, TIM Dec. 2019 4640-4652
- Surface Defects Detection Based on Adaptive Multiscale Image Collection and Convolutional Neural Networks. Sun, J., +, TIM Dec. 2019 4787-4797
- Tea Quality Prediction by Sparse Modeling of Electronic Tongue Signals. Saha, P., +, TIM Sept. 2019 3046-3053
- The Influence of Uncertainty Contributions on Deep Learning Architectures in Vision-Based Evaluation Systems. *Callari, G.*, +, *TIM July 2019 2425-2432*
- Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM. Wang, T., +, TIM March 2019 818-828

### Least squares approximations

- A Differential Accelerometer System: Offline Calibration and State Estimation. Belkhouche, F., TIM Sept. 2019 3109-3118
- A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014*
- A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh, S.*, +, *TIM March* 2019 646-655
- Amplitude Estimation and Source Separation for Harmonics Within Two Mixtures Based on a Min-Rank Criterion. *Yang, Y., +, TIM Dec. 2019* 4618-4628
- Fast Defect Inspection Based on Data-Driven Photometric Stereo. *Ren, M.*, +, *TIM April 2019 1148-1156*
- Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131

- New Measurement Algorithm for Supraharmonics Based on Multiple Measurement Vectors Model and Orthogonal Matching Pursuit. *Zhuang, S.*, +, *TIM June 2019 1671-1679*
- On-Line Measurement of Dynamic Tilt Angle by Compensating Gyroscope Drift Error. Shi, L., +, TIM Sept. 2019 3244-3252
- Optimum Placement of Phasor Measurement Units in Power Systems. *Sun*, *L.*, +, *TIM Feb. 2019 421-429*
- Overcoming Frequency Response Measurements of Voltage Transformers: An Approach Based on Quasi-Sinusoidal Volterra Models. *Faifer, M.*, +, *TIM Aug. 2019 2800-2807*
- RFID 3-D Indoor Localization for Tag and Tag-Free Target Based on Interference. *Liu*, *M*., +, *TIM Oct. 2019 3718-3732*
- Wiener-Hammerstein System Identification: A Fast Approach Through Spearman Correlation. Shaikh, M.A.H., +, TIM May 2019 1628-1636

#### Level measurement

- An Acoustic Resonance-Based Liquid Level Detector With Error Compensation. Xu, X., +, TIM April 2019 963-971
- Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. *He, Q.*, +, *TIM Oct. 2019 3456-3467*

#### Life testing

Health Assessment Method for Electronic Components Subject to Condition Monitoring and Hard Failure. Zhao, S., +, TIM Jan. 2019 138-150

#### Light absorption

- Highly Sensitive SPR Biosensor Based on Graphene Oxide and Staphylococcal Protein A Co-Modified TFBG for Human IgG Detection. *Wang, Q.*, +, *TIM Sept. 2019 3350-3357*
- Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717*

#### Light coherence

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

# Light diffraction

A Hyperspectral Imaging Instrumentation Architecture Based on Accessible Optical Disc Technology and Frequency-Domain Analyses. *Brodie, C.H.*, +, *TIM July 2019 2531-2538* 

# Light emitting diodes

- A Low-Cost LED-Based Solar Simulator. *Lopez-Fraguas, E.*, +, *TIM Dec.* 2019 4913-4923
- Wearable Inverse Light-Emitting Diode Sensor for Measuring Light Intensity at Specific Wavelengths in Light Therapy. *Tsai*, *H*., +, *TIM May 2019* 1561-1574

## Light interference

- A Novel PD Detection Technique for Use in GIS Based on a Combination of UHF and Optical Sensors. *Han, X., +, TIM Aug. 2019 2890-2897*
- Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light. *Dashpute*, A., +, *TIM Jan.* 2019 160-168

## Light interferometers

- A Parasitic Displacement Measurement System for Suspended Coil in Joule Balance. *Bai*, Y., +, *TIM June 2019 2237-2245*
- Volume Measurement of a <sup>28</sup>Si-Enriched Sphere for a Determination of the Avogadro Constant at NMIJ. *Kuramoto*, N., +, TIM June 2019 1913-1920
- Wavefront Aberration of Spheres With Local Deviations and Their Influence on the Radius Value. *Kuhn, E., +, TIM June 2019 2303-2309*

### Light interferometry

- Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-
- Point Cloud and 3-D Surface Reconstruction Using Cylindrical Millimeter-Wave Holography. *Gao, J.*, +, *TIM Dec. 2019 4765-4778*

# Light polarization

- Characterization of the Vacuum Birefringence Polarimeter at BMV: Dynamical Cavity Mirror Birefringence. *Hartman, M.T.*, +, *TIM June 2019 2268-2273*
- Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light. Dashpute, A., +, TIM Jan. 2019 160-168

#### Light reflection

Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light. *Dashpute*, A., +, *TIM Jan. 2019 160-168* On the Design of Force Sensors Based on Frustrated Total Internal Reflection. *Lavatelli*, A., +, *TIM Oct. 2019 4065-4074* 

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

#### Light scattering

Vision-Based Measurement of Dust Concentration by Image Transmission. Li, G., +, TIM Oct. 2019 3942-3949

#### Light sources

Optical Transition-Edge Sensors: Dependence of System Detection Efficiency on Wavelength. *Hattori, K.*, +, *TIM June 2019 2253-2259* 

Wearable Inverse Light-Emitting Diode Sensor for Measuring Light Intensity at Specific Wavelengths in Light Therapy. *Tsai*, *H*., +, *TIM May 2019* 1561-1574

#### Light transmission

Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light. *Dashpute*, A., +, TIM Jan. 2019 160-168

#### Lighting

Fast Defect Inspection Based on Data-Driven Photometric Stereo. Ren, M., +, TIM April 2019 1148-1156

Wearable Inverse Light-Emitting Diode Sensor for Measuring Light Intensity at Specific Wavelengths in Light Therapy. *Tsai*, *H*., +, *TIM May 2019 1561-1574* 

# Lightning

Effect of Step Response Measurement Arrangement on the Correction of Ultrahigh-Voltage Lightning Impulse Dividers. *Yan, W.*, +, *TIM June 2019* 1666-1670

# Linear motors

Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. Zhao, J., +, TIM Sept. 2019 3268-3277

### Linux

Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *Aranzabal*, N., +, *TIM April 2019 1062-1070* 

# Liquid films

IR Transceiver Irradiation Characteristics on Bubble/Slug Flow Regimes in Conventional and Minichannels. *Mithran, N.*, +, *TIM Jan. 2019 240-249* 

### Liquid metals

Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. He, Q., +, TIM Oct. 2019 3456-3467

## Load (electric)

Behavioral Representation of a Bridge Rectifier Using Simplified Volterra Models. Faifer, M., +, TIM May 2019 1611-1618

### Load flow

An Improved Load Flow Method for MV Networks Based on LV Load Measurements and Estimations. Cataliotti, A., +, TIM Feb. 2019 430-438

### Load shedding

PMU-Based ROCOF Measurements: Uncertainty Limits and Metrological Significance in Power System Applications. *Frigo, G.*, +, *TIM Oct. 2019* 3810-3822

### Local area networks

A Synchronized Current-Comparator Bridge for the Calibration of Analog Merging Units. *Djokic, B., +, TIM June 2019 1955-1960* 

# Location based services

RSSI-Based Indoor Localization and Identification for ZigBee Wireless Sensor Networks in Smart Homes. *Bianchi, V.*, +, *TIM Feb. 2019 566-575* 

### Loss measurement

A High-Precision Current Transformer for Loss Measurements of EHV Shunt Reactors. So, E., +, TIM June 2019 1680-1687

Comparison of Reference Setups for Calibrating Power Transformer Loss Measurement Systems. *Rietveld, G.*, +, *TIM June 2019 1732-1739* 

# Low noise amplifiers

Calibrating Ultrastable Low-Noise Current Amplifiers of the Second Generation With a Cryogenic Current Comparator. *Gotz, M.*, +, *TIM June 2019* 2027-2033

Electrometer Calibration With Sub-Part-Per-Million Uncertainty. Scherer, H., +, TIM June 2019 1887-1894

Interlaboratory Nanoamp Current Comparison With Subpart-Per-Million Uncertainty. Giblin, S.P., +, TIM June 2019 1996-2002

Peculiarities of Hardware for Electrochemical Noise Measurement in Chemical Power Sources. *Astafev, E., +, TIM Nov. 2019 4412-4418* 

#### Low-pass filters

A New Method With Hilbert Transform and Slip-SVD-Based Noise-Suppression Algorithm for Noisy Power Quality Monitoring. *Wang, Y.*, +, *TIM April 2019 987-1001* 

Design and Analysis of a Relaxation Oscillator-Based Interface Circuit for LVDT. *Ganesan, H.*, +, *TIM May 2019 1261-1270* 

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao, X.*, +, *TIM Nov. 2019 4285-4299* 

# Low-power electronics

A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan*, S., +, *TIM Aug.* 2019 2871-2879

A Precision, Energy-Efficient, Oversampling, Noise-Shaping Differential SAR Capacitance-to-Digital Converter. *Alhoshany, A.*, +, *TIM Feb. 2019* 392-401

Design and Implementation of a High-Sensitivity and Compact-Size IFM Receiver. *Rahimpour, H., +, TIM July 2019 2602-2609* 

Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. Mayer, P., +, TIM July 2019 2346-2355

Ultralow-Power Synchronous Demodulation for Low-Level Sensor Signal Detection. *Maya-Hernandez, P.M.*, +, *TIM Oct. 2019 3514-3523* 

# Lung

k-Space-Based Enhancement of Pulmonary Hyperpolarized <sup>129</sup>Xe Ventilation Images. Deng, H., +, TIM Oct. 2019 3950-3961

A Measurement System to Estimate the Pleural Pressure From the CVP for Respiratory System Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2469-2478* 

# Lyapunov methods

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao*, *X.*, +, *TIM Nov. 2019 4285-4299* 

### $\mathbf{M}$

### Mach-Zehnder interferometers

Characterization of a Nanometer Displacement Gauge for the Dimensional Control of Large Optomechanical Structures. *Donazzan, A.*, +, *TIM April* 2019 1165-1177

Evaluation of Fiber Noise Induced in Ultrastable Environments. *Wada*, *M*., +. *TIM June* 2019 2246-2252

### Machine bearings

Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753

Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning. *Kao, I., +, TIM Feb. 2019 310-324* 

Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233* 

Fiber Bragg Grating-Based Oil-Film Pressure Measurement in Journal Bearings. Mu, B., +, TIM May 2019 1575-1581

Tacholess Speed Estimation in Order Tracking: A Review With Application to Rotating Machine Fault Diagnosis. Lu, S., +, TIM July 2019 2315-2332

Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019* 2810 2820

Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM. Wang, T., +, TIM March 2019 818-828

Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

# Machine control

Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. Zhao, J., +, TIM Sept. 2019 3268-3277

Resolver-To-Digital Conversion Based on Acceleration-Compensated Angle Tracking Observer. Wang, F., +, TIM Oct. 2019 3494-3502

### Machine insulation

Multilevel PWM: A Tool to Explore Insulation PD Characteristics. Hammarstrom, T.J.A., TIM Oct. 2019 4075-4084

#### Machine theory

Broken Rotor Bar Detection in Induction Motors Based on Air-Gap Rotational Magnetic Field Measurement. *Soleimani, Y.*, +, *TIM Aug. 2019* 2916-2925

#### Machine vector control

Novel Complex-Valued Stator Current-Based MRAS Estimators With Different Adaptation Mechanisms. *Zerdali, E., +, TIM Oct. 2019 3793-3795* 

#### Machine windings

Multilevel PWM: A Tool to Explore Insulation PD Characteristics. *Hammarstrom, T.J.A., TIM Oct.* 2019 4075-4084

#### Machinery

An Enhanced Trace Ratio Linear Discriminant Analysis for Fault Diagnosis: An Illustrated Example Using HDD Data. *Yang, A.*, +, *TIM Dec. 2019* 4629-4639

Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233* 

Fast Nonlinear Chirplet Dictionary-Based Sparse Decomposition for Rotating Machinery Fault Diagnosis Under Nonstationary Conditions. *Yang, B.*, +, *TIM Dec. 2019 4736-4745* 

Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors. *Reda, K.*, +, *TIM May 2019 1467-1476* 

#### Magic angle spinning

Design, Construction, and Characterization of a Magic Angle Field Spinning RF Magnet. *Alonso-Valdesueiro*, J., +, TIM Oct. 2019 4094-4103

#### Magnetic cores

Sensitivity and Resolution Enhancement of Coupled-Core Fluxgate Magnetometer by Negative Feedback. Li, J., +, TIM Feb. 2019 623-631

## Magnetic devices

Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient. *Zhang, X.*, +, *TIM March 2019 680-687* Magnetic field effects

Design, Construction, and Characterization of a Magic Angle Field Spinning RF Magnet. *Alonso-Valdesueiro*, J., +, TIM Oct. 2019 4094-4103

## Magnetic field measurement

A Fluxgate-Based Approach for Ion Beam Current Measurement in ECRIS Beamline: Design and Preliminary Investigations. *Ando, B.*, +, *TIM May* 2019 1477-1484

A High-Frequency and High Spatial Resolution Probe Design for EMI Prediction. *Yang, R.*, +, *TIM Aug. 2019 3012-3019* 

A Linear Direct-Digital Converter for Sinusoidal Encoders. *Bhaskarrao*, N.K., +, TIM July 2019 2570-2578

A Novel Method for Wide Range Electric Current Measurement in Gas-Insulated Switchgears With Shielded Magnetic Measurements. *Khawaja*, A.H., +, TIM Dec. 2019 4712-4722

A Robust Pedestrian Dead Reckoning System Using Low-Cost Magnetic and Inertial Sensors. Shi, L., +, TIM Aug. 2019 2996-3003

Broken Rotor Bar Detection in Induction Motors Based on Air-Gap Rotational Magnetic Field Measurement. Soleimani, Y., +, TIM Aug. 2019 2916-2925

Design of Cable Parallel Air-Core Coil Sensor to Reduce Motion-Induced Noise in Helicopter Transient Electromagnetic System. *Liu*, F., +, *TIM Feb.* 2019 525-532

Eddy Current Testing Probe Based on Double-Coil Excitation and GMR Sensor. *Bernieri*, A., +, *TIM May 2019 1533-1542* 

Electromagnetic Metrology for Nano- Electromechanical Systems. *Hao, L.*, +, *TIM June 2019 1827-1832* 

Fault Detection of VLSI Power Supply Network Based on Current Estimation From Surface Magnetic Field. *Takahashi*, D., +, *TIM July 2019 2519-2530* 

Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking. Dai, H., +, TIM Sept. 2019 3379-3386 High-Accuracy Localization and Calibration for 5-DoF Indoor Magnetic Positioning Systems. *Hehn, M., +, TIM Oct. 2019 4135-4145* 

Impact of Coreless Current Transformer Position on Current Measurement. Ma, X., +, TIM Oct. 2019 3801-3809

Magnetic Field Sensing Based on SPR Optical Fiber Sensor Interacting With Magnetic Fluid. *Zhou, X., +, TIM Jan. 2019 234-239* 

Magnetic Source Imaging Using a Pulsed Optically Pumped Magnetometer Array. Borna, A., +, TIM Feb. 2019 493-501

Magnetic-Field Measurement Based on Multicore Fiber Taper and Magnetic Fluid. Yue, C., +, TIM March 2019 688-692

Sensitivity and Resolution Enhancement of Coupled-Core Fluxgate Magnetometer by Negative Feedback. *Li*, *J.*, +, *TIM Feb. 2019 623-631* 

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Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient. *Zhang, X.*, +, *TIM March 2019 680-687* Magnetic fluids

Magnetic Field Sensing Based on SPR Optical Fiber Sensor Interacting With Magnetic Fluid. Zhou, X., +, TIM Jan. 2019 234-239

Magnetic-Field Measurement Based on Multicore Fiber Taper and Magnetic Fluid. *Yue, C.*, +, *TIM March 2019 688-692* 

#### Magnetic flux

An Opening Profile Recognition Method for Magnetic Flux Leakage Signals of Defect. *Huang, S.*, +, *TIM June 2019 2229-2236* 

Design, Construction, and Characterization of a Magic Angle Field Spinning RF Magnet. *Alonso-Valdesueiro*, J., +, TIM Oct. 2019 4094-4103

# Magnetic leakage

An Opening Profile Recognition Method for Magnetic Flux Leakage Signals of Defect. *Huang, S.*, +, *TIM June 2019 2229-2236* 

#### Magnetic moments

Localization of a Mobile Platform Equipped With a Rotating Magnetic Dipole Source. Sheinker, A., +, TIM Jan. 2019 116-128

### Magnetic noise

A Novel Method for Wide Range Electric Current Measurement in Gas-Insulated Switchgears With Shielded Magnetic Measurements. *Khawaja*, *A.H.*, +, *TIM Dec.* 2019 4712-4722

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A Fast Identification on the Spin-Exchange Relaxation-Free Regime of Atomic Magnetometer Exploiting Measurement on Gyromagnetic Ratio. *Zhang, X.*, +, *TIM April 2019 1157-1164* 

A Linear Direct-Digital Converter for Sinusoidal Encoders. *Bhaskarrao*, N.K., +, TIM July 2019 2570-2578

A Parallel Attitude-Heading Kalman Filter Without State-Augmentation of Model-Based Disturbance Components. *Lee, J.K., TIM July 2019 2668-2670* 

A Robust Pedestrian Dead Reckoning System Using Low-Cost Magnetic and Inertial Sensors. Shi, L., +,

TIM Aug. 2019 2996-3003

Design of Cable Parallel Air-Core Coil Sensor to Reduce Motion-Induced Noise in Helicopter Transient Electromagnetic System. *Liu, F., +, TIM Feb.* 2019 525-532

Design, Construction, and Characterization of a Magic Angle Field Spinning RF Magnet. *Alonso-Valdesueiro*, J., +, TIM Oct. 2019 4094-4103

Eddy Current Testing Probe Based on Double-Coil Excitation and GMR Sensor. Bernieri, A., +, TIM May 2019 1533-1542

Finger Displacement Sensing: FEM Simulation and Model Prediction of a Three-Layer Electrode Design. *Hu*, *N*., +, *TIM May 2019 1432-1440* 

Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking. Dai, H., +, TIM Sept. 2019 3379-3386

High-Accuracy Localization and Calibration for 5-DoF Indoor Magnetic Positioning Systems. *Hehn, M., +, TIM Oct. 2019 4135-4145* 

Impact of Coreless Current Transformer Position on Current Measurement.

Ma, X., +, TIM Oct. 2019 3801-3809

Magnetic Source Imaging Using a Pulsed Optically Pumped Magnetometer Array. Borna, A., +, TIM Feb. 2019 493-501

Magnetic-Field Measurement Based on Multicore Fiber Taper and Magnetic Fluid. *Yue*, C., +, TIM March 2019 688-692

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S.*, +, *TIM July 2019 2335-2345* 

Practical Current Distribution Measurement Systems for Lead Cells. *Harrison, H.T.*, +, *TIM Sept. 2019 3151-3165* 

Sensitivity and Resolution Enhancement of Coupled-Core Fluxgate Magnetometer by Negative Feedback. Li, J., +, TIM Feb. 2019 623-631

#### Magnetic shielding

A Novel Method for Wide Range Electric Current Measurement in Gas-Insulated Switchgears With Shielded Magnetic Measurements. *Khawaja*, A.H., +, TIM Dec. 2019 4712-4722

Sensitivity and Resolution Enhancement of Coupled-Core Fluxgate Magnetometer by Negative Feedback. *Li*, *J*., +, *TIM Feb. 2019 623-631* 

#### Magnetization

k-Space-Based Enhancement of Pulmonary Hyperpolarized <sup>129</sup>Xe Ventilation Images. Deng, H., +, TIM Oct. 2019 3950-3961

# Magneto-optical effects

Magnetic Field Sensing Based on SPR Optical Fiber Sensor Interacting With Magnetic Fluid. Zhou, X., +, TIM Jan. 2019 234-239

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Magnetic Field Sensing Based on SPR Optical Fiber Sensor Interacting With Magnetic Fluid. *Zhou, X.*, +, *TIM Jan. 2019 234-239* 

# Magnetoelectronics

Spincaloritronic Measurements: A Round Robin Comparison of the Longitudinal Spin Seebeck Effect. Sola, A., +, TIM June 2019 1765-1773

#### Magnetometers

A Fast Identification on the Spin-Exchange Relaxation-Free Regime of Atomic Magnetometer Exploiting Measurement on Gyromagnetic Ratio. *Zhang, X.*, +, *TIM April 2019 1157-1164* 

A Stochastic Optimization Approach to Magnetometer Calibration With Gradient Estimates Using Simultaneous Perturbations. *Tahir, M.*, +, *TIM Oct. 2019 4152-4161* 

Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking. *Dai, H., +, TIM Sept. 2019 3379-3386* 

Localization of a Mobile Platform Equipped With a Rotating Magnetic Dipole Source. Sheinker, A., +, TIM Jan. 2019 116-128

Magnetic Source Imaging Using a Pulsed Optically Pumped Magnetometer Array. Borna, A., +, TIM Feb. 2019 493-501

# Magnetometry

A Fast Identification on the Spin-Exchange Relaxation-Free Regime of Atomic Magnetometer Exploiting Measurement on Gyromagnetic Ratio. *Zhang, X.*, +, *TIM April 2019 1157-1164* 

# Magnetoresistive devices

Eddy Current Testing Probe Based on Double-Coil Excitation and GMR Sensor. Bernieri, A., +, TIM May 2019 1533-1542

# Maintenance engineering

An Automated System for Position Monitoring and Correction of Chord-Based Rail Corrugation Measuring Points. Chen, L., +, TIM Jan. 2019 250-260

An Enhanced Trace Ratio Linear Discriminant Analysis for Fault Diagnosis: An Illustrated Example Using HDD Data. *Yang, A.*, +, *TIM Dec. 2019* 4629-4639

Application of FRA to Improve the Design and Maintenance of Wireless Power Transfer Systems. *Kim, D.*, +, *TIM Nov. 2019 4313-4325* 

Early Fault Diagnosis and Classification of Ball Bearing Using Enhanced Kurtogram and Gaussian Mixture Model. *Hong, Y.*, +, *TIM Dec. 2019* 4746-4755

Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. Wang, H., +, TIM Oct. 2019 3536-3547

Low-Cost Online Contact Resistance Measurement of Power Connectors to Ease Predictive Maintenance. *Kadechkar, A., +, TIM Dec. 2019 4825-4833* Synchronization Uncertainty Versus Power Efficiency in LoRaWAN Net-

works. *Rizzi, M.*, +, *TIM April 2019 1101-1111*Transient Feature Extraction Based on Time–Frequency Manifold Image

Transient Feature Extraction Based on Time–Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. Ding, X., +, TIM Nov. 2019 4242-4252

#### Manipulators

Calibration and Characterization of a Magnetic Positioning System Using a Robotic Arm. Santoni, F., +, TIM May 2019 1494-1502

#### Marine engineering

Intelligent Diagnosis of V-Type Marine Diesel Engines Based on Multifeatures Extracted From Instantaneous Crankshaft Speed. Zhang, M., +, TIM March 2019 722-740

# Marine pollution

In Situ Measurement of Oil Slick Thickness. Saleh, M., +, TIM July 2019 2635-2647

#### Markov processes

Health Assessment Method for Electronic Components Subject to Condition Monitoring and Hard Failure. Zhao, S., +, TIM Jan. 2019 138-150

Probabilistic Framework for Dynamic Measurements for Markovian Models With a Uniform Prior for the Measurand. *Rossi*, *G.B.*, +, *TIM Nov. 2019* 4357-4367

#### Mass measurement

A Simple Electrostatic Balance for the Milligram Range. *Pisani, M.*, +, *TIM June 2019 2223-2228* 

Measurement of Submilligram Masses Using Electrostatic Force. Shaw, G.A., +, TIM June 2019 2015-2020

QCM-Micropillar-Based Coupled Resonators in the Detection of Gas Mass Flow Rates. *Kashan, M.A.M.*, +, *TIM Jan. 2019 303-305* 

The Improvements of the NIM-2 Joule Balance. Li, Z., +, TIM June 2019 2208-2214

#### Matched filters

TOA Estimation of Chirp Signal in Dense Multipath Environment for Low-Cost Acoustic Ranging. Zhang, L., +, TIM Feb. 2019 355-367

### Materials science computing

An Approach of Single-Crystal Defect Detection Using X-Ray Orientation Instrument. *Guan*, S., +, *TIM Oct.* 2019 4122-4134

FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386* 

# Mathematical analysis

A Linear Direct-Digital Converter for Sinusoidal Encoders. *Bhaskarrao*, N.K., +, TIM July 2019 2570-2578

Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure. Pau, M., +, TIM Nov. 2019 4300-4312

Determination of AC–DC Transfer Difference of Calculable Thermal Voltage Converters in 1–30-MHz Frequency Range. *Grzenik, M.*, +, *TIM June* 2019 2072-2077

Impact of Current and Power Measurements on Distribution System State Estimation Uncertainty. *Pau, M.*, +, *TIM Oct. 2019 3992-4002* 

# **Mathematics computing**

Development of a Novel Linear ERT Sensor to Measure Surface Deposits. Ren, Z., +, TIM March 2019 754-761

### Matrix algebra

A Measurement of Noise Wave Correlation Matrix Using Noise Power Ratios. Lee, D., +, TIM July 2019 2579-2593

A Novel Sensitivity Matrix Construction Method for Ultrasonic Tomography Based on Simulation Studies. *Li*, *N.*, +, *TIM Oct. 2019 3548-3562* 

ADMOST: UAV Flight Data Anomaly Detection and Mitigation via Online Subspace Tracking. *He, Y., +, TIM April 2019 1035-1044* 

Highly Dispersion Tailored Property of Novel Class of Multimode Surface Plasmon Resonance Biosensor Assisted by Teflon and Metamaterial Layers. *Raghuwanshi*, S.K., +, TIM Aug. 2019 2954-2963

New Measurement Algorithm for Supraharmonics Based on Multiple Measurement Vectors Model and Orthogonal Matching Pursuit. *Zhuang*, S., +, *TIM June 2019 1671-1679* 

Pixels and 3-D Points Alignment Method for the Fusion of Camera and LiDAR Data. Xie, S., +, TIM Oct. 2019 3661-3676

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

## Matrix decomposition

Fast Nonlinear Chirplet Dictionary-Based Sparse Decomposition for Rotating Machinery Fault Diagnosis Under Nonstationary Conditions. *Yang, B.*, +, *TIM Dec. 2019 4736-4745* 

#### Maximum likelihood estimation

- Indoor Occupancy Awareness and Localization Using Passive Electric Field Sensing. *Tang, X.*, +, *TIM Nov. 2019 4535-4549*
- Joint Compensation of Jitter Noise and Time-Shift Errors in Multichannel Sampling System. *Araghi, H.*, +, *TIM Oct. 2019 3932-3941*
- Pixels and 3-D Points Alignment Method for the Fusion of Camera and LiDAR Data. Xie, S., +, TIM Oct. 2019 3661-3676
- Pulse Pileup Correction of Signals From a Pyroelectric Sensor for Phase-Insensitive Ultrasound Computed Tomography. Baker, C., +, TIM Oct. 2019 3920-3931

# Maximum power point trackers

Moving Photovoltaic Installations: Impacts of the Sampling Rate on Maximum Power Point Tracking Algorithms. Schuss, C., +, TIM May 2019 1485-1493

# Mean square error methods

- A Novel Calibration Method for Magnetometer Array in Nonuniform Background Field. Mu, Y., +, TIM Oct. 2019 3677-3685
- Behavior Modeling of the Amplifier Nonlinearity With the AC Josephson Voltage Standard. *Zhou, K.*, +, *TIM June 2019 1990-1995*
- Height Measurement in Seamless Indoor/Outdoor Infrastructure-Free Navigation. Rantanen, J., +, TIM April 2019 1199-1209
- High-Accuracy Localization and Calibration for 5-DoF Indoor Magnetic Positioning Systems. *Hehn, M., +, TIM Oct. 2019 4135-4145*
- Noise Power Estimators in ISM Radio Environments: Performance Comparison and Enhancement Using a Novel Samples Separation Technique. *Nikonowicz, J.*, +, *TIM Jan. 2019 105-115*
- PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. Chakraborty, M., +, TIM Jan. 2019 189-196
- Wiener-Hammerstein System Identification: A Fast Approach Through Spearman Correlation. Shaikh, M.A.H., +, TIM May 2019 1628-1636

### Measurement by laser beam

- Characterization of a Nanometer Displacement Gauge for the Dimensional Control of Large Optomechanical Structures. *Donazzan*, A., +, *TIM April* 2019 1165-1177
- Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. Das, S., +, TIM Sept. 2019 3308-3320
- Radiation-Pressure-Enabled Traceable Laser Sources at CW Powers up to 50 kW. Williams, P.A., +, TIM June 2019 1833-1839
- Self-Calibrated Multiharmonic CO<sub>2</sub> Sensor Using VCSEL for Urban *In Situ* Measurement. *Lan, L., +, TIM April 2019 1140-1147*
- Uncertainty Assessment of Optical Distance Measurements at Micrometer Level Accuracy for Long-Range Applications. *Guillory, J.*, +, *TIM June* 2019 2260-2267

### Measurement errors

- A Fast Identification on the Spin-Exchange Relaxation-Free Regime of Atomic Magnetometer Exploiting Measurement on Gyromagnetic Ratio. *Zhang, X.*, +, *TIM April 2019 1157-1164*
- A New Method for Calibrating Nonlinear Coefficients of PIGA on Linear Vibrator. Ren, S., +, TIM Aug. 2019 2898-2906
- A Parasitic Displacement Measurement System for Suspended Coil in Joule Balance. *Bai*, Y., +, *TIM June 2019 2237-2245*
- A Robust Pedestrian Dead Reckoning System Using Low-Cost Magnetic and Inertial Sensors. Shi, L., +, TIM Aug. 2019 2996-3003
- A Self-Gap-Correction Method for Accurate Permittivity Measurement Using the Hybrid Optimization Algorithm. *Xu*, *H*., +, *TIM June 2019 1781-1787*
- Compensation of Systematic Measurement Errors in a PMU-Based Monitoring System for Electric Distribution Grids. *Pegoraro, P.A.*, +, *TIM Oct.* 2019 3871-3882
- Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light. Dashpute, A., +, TIM Jan. 2019 160-168
- Dynamic Offset Correction of Electromagnetic Flowmeters. *Linnert, M.A.*, +, *TIM May 2019 1284-1293*
- FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386*
- Harmonics Effects on Microwave Power Measurement Using Diode Sensors. Drazil, K., +, TIM June 2019 1852-1859

- Impact of Coreless Current Transformer Position on Current Measurement. Ma, X., +, TIM Oct. 2019 3801-3809
- Improvement of Broadband Characterization of Dielectric Waveguide at the *Ka*-Band by Using TRL Calibration Method. *Kato*, Y., +, *TIM June 2019* 1788-1795
- INS/CNS Integrated Navigation Based on Corrected Infrared Earth Measurement. Gou, B., +, TIM Sept. 2019 3358-3366
- Interval State Estimation for Low-Voltage Distribution Systems Based on Smart Meter Data. *Huang, M.*, +, *TIM Sept. 2019 3090-3099*
- Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. *Das, S., +, TIM Sept. 2019 3308-3320*
- Modeling and Validation of Fixture-Induced Error for Impedance Measurements. *Nelson, B.W.*, +, *TIM Jan. 2019 129-137*
- Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. *Zhao, J.*, +, *TIM Sept. 2019 3268-3277*
- Self-Calibration and Verification of Phase Angle Errors of Two Voltage Dividers at High Frequencies. Shi, Z., +, TIM June 2019 2053-2059
- Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. *Pan, D.*, +, *TIM Oct.* 2019 3576-3588
- Torsional Balance for Simultaneous Evaluation of Thrust Force and Flow Velocity of Electrostatically Induced Ionic Wind. *Lee, J.R.*, +, *TIM Nov.* 2019 4518-4525
- Towards Accurate and Wideband *In Vivo* Measurement of Skin Dielectric Properties. *Gao*, Y., +, *TIM Feb. 2019 512-524*

#### Measurement standards

- A New Phase Difference Measurement System With Differential AC/Single-Ended DC Switching for One TVC. *Yamada*, *T.*, +, *TIM June 2019* 2021-2026
- AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K. *Kucera*, *J.*, +, *TIM June 2019 2106-2112*
- Analysis of Correlation in the Intercomparison of DC Voltage Reference Standards. Sachica, M., +, TIM June 2019 2168-2171
- Behavior Modeling of the Amplifier Nonlinearity With the AC Josephson Voltage Standard. Zhou, K., +, TIM June 2019 1990-1995
- Calibration of Gigahertz Microwave Generator for the Programmable Josephson Voltage Standard at NRC. Gertsvolf, M., +, TIM June 2019 1901-1906
- Calibration of the Absolute Linearity of Lock-In Amplifiers. Corminboeuf, D., TIM June 2019 2060-2065
- Characterization of 1 k $\Psi$  Metal-Foil Standard Resistors and Continuing Drift-Rate Evaluation of 1  $\Omega$  and 10  $\Omega$  Standard Resistors. *Abe, T.*, +, *TIM June 2019 2078-2083*
- Comparison of Reference Setups for Calibrating Power Transformer Loss Measurement Systems. *Rietveld, G.*, +, *TIM June 2019 1732-1739*
- Comparison of Two Methods for Phase Angle Measurement. Velychko, O., +, TIM June 2019 1740-1747
- Concentration Measurement of Microliter-Volume Water–Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634*
- Conference on Precision Electromagnetic Measurements (CPEM 2018). Allal, D., +, TIM June 2019 1652
- Determination of AC–DC Transfer Difference of Calculable Thermal Voltage Converters in 1–30-MHz Frequency Range. *Grzenik, M.*, +, *TIM June* 2019 2072-2077
- Determination of Frequency-Independent Component of AC–DC Transfer Difference of SUT Calculable AC Voltage Standards. *Grzenik, M.*, +, *TIM May 2019 1515-1521*
- Electrometer Calibration With Sub-Part-Per-Million Uncertainty. *Scherer,* H., +, *TIM June 2019 1887-1894*
- Establishing a New Form of Primary Impedance Standard at Millimeter-Wave Frequencies. Azeez, Y.F., +, TIM Jan. 2019 294-296
- Four-Terminal Pair Digital Sampling Impedance Bridge up to 1MHz. Maslan, S., +, TIM June 2019 1860-1869
- Graphene Devices for Tabletop and High-Current Quantized Hall Resistance Standards. Rigosi, A.F., +, TIM June 2019 1870-1878

- Harmonic Power Standard of VTT MIKES. Lehtonen, T.A., TIM June 2019 2047-2052
- Improvement of Broadband Characterization of Dielectric Waveguide at the *Ka*-Band by Using TRL Calibration Method. *Kato, Y.*, +, *TIM June 2019* 1788-1795
- Josephson Arbitrary Waveform Synthesizer as a Reference Standard for the Measurement of the Phase of Harmonics in Distorted Waveforms. *Georga-kopoulos*, D., +, TIM June 2019 1927-1934
- Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. *Das*, *S.*, +, *TIM Sept.* 2019 3308-3320
- Measurement of Submilligram Masses Using Electrostatic Force. *Shaw, G.A., +, TIM June 2019 2015-2020*
- Method for the Absolute Calibration of Direct-Current Current Transducers. Zhao, J., +, TIM June 2019 1961-1966
- Null Technique for Precision RF Phase Shift Measurements. Widarta, A., TIM June 2019 1840-1843
- On-Wafer Coplanar Waveguide Standards for S-Parameter Measurements of Balanced Circuits Up to 40 GHz. *Pham, T.D.*, +, *TIM June 2019 2160-2167*
- The Improvements of the NIM-2 Joule Balance. Li, Z., +, TIM June 2019 2208-2214
- Toward a Calculable Standard Shunt for Current Measurements at 10 A and Up To 1 MHz. *Ouameur, M.*, +, *TIM June 2019 2215-2222*
- Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges. *Kim, D.B., +, TIM June 2019 1941-1947*
- Voltage Standard Based on Dry-Cooled High-Temperature Superconductor Josephson Junctions. *Khorshev, S.K.*, +, *TIM June 2019 2113-2120*

#### Measurement systems

- Errors of Multiplying D/A Converters Used for Precise AC Voltage Division. Rybski, R., +, TIM June 2019 1821-1826
- On-Site Reliable Wheel Size Measurement Based on Multisensor Data Fusion. *Pan, X.*, +, *TIM Nov. 2019 4575-4589*

### Measurement techniques

- Conference on Precision Electromagnetic Measurements (CPEM 2018). Allal, D., +, TIM June 2019 1652
- Guest Editorial The 2018 IEEE International Symposium on Medical Measurements and Applications Special Section. Scalise, L., +, TIM July 2019 2394-2395

## Measurement uncertainty

- A Method for Remote Estimation of Wattmeter's Adjustment Gain. *Nakutis*, Z., +, *TIM March 2019 713-721*
- A Multisignal Wavelet Variance-Based Framework for Inertial Sensor Stochastic Error Modeling. *Radi*, A., +, *TIM Dec.* 2019 4924-4936
- A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902
- A New Phase Difference Measurement System With Differential AC/Single-Ended DC Switching for One TVC. Yamada, T., +, TIM June 2019 2021-2026
- A Parasitic Displacement Measurement System for Suspended Coil in Joule Balance. *Bai*, *Y*., +, *TIM June 2019 2237-2245*
- A Proposal for a More User-Oriented GUM. Rossi, G.B., +, TIM May 2019 1343-1352
- A Simple Electrostatic Balance for the Milligram Range. *Pisani, M.*, +, *TIM June 2019 2223-2228*
- AC Voltage Measurements to 120 V With a Josephson Arbitrary Waveform Synthesizer and an Inductive Voltage Divider. *Georgakopoulos, D.*, +, *TIM June 2019 1935-1940*
- Analysis of Correlation in the Intercomparison of DC Voltage Reference Standards. Sachica, M., +, TIM June 2019 2168-2171
- Calibration of the Absolute Linearity of Lock-In Amplifiers. *Corminboeuf, D., TIM June 2019 2060-2065*
- Calibration of Vision-Based Measurement of Pain Intensity With Multiple Expert Observers. Casti, P., +, TIM July 2019 2442-2450
- Characterization of a Type-N Coaxial Microcalorimeter for Use as Microwave Power Standard at CENAM. *Botello-Perez, M.*, +, *TIM Feb. 2019* 558-565

- Closed-Loop Optimization of DIC Speckle Patterns Based on Simulated Experiments. *Lavatelli*, A., +, *TIM Nov. 2019 4376-4386*
- Compact Distributed Digitizers With Metrological Precision. *Houtzager, E.*, +, *TIM June 2019 1653-1658*
- Comparison of Reference Setups for Calibrating Power Transformer Loss Measurement Systems. *Rietveld, G.*, +, *TIM June 2019 1732-1739*
- Comparison of Two Methods for Phase Angle Measurement. *Velychko, O.*, +, *TIM June 2019 1740-1747*
- Determination of Frequency-Independent Component of AC–DC Transfer Difference of SUT Calculable AC Voltage Standards. *Grzenik, M.*, +, *TIM May 2019 1515-1521*
- Electrometer Calibration With Sub-Part-Per-Million Uncertainty. *Scherer, H., +, TIM June 2019 1887-1894*
- Four-Terminal Pair Digital Sampling Impedance Bridge up to 1MHz. Maslan, S., +, TIM June 2019 1860-1869
- FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386*
- Graphene Devices for Tabletop and High-Current Quantized Hall Resistance Standards. *Rigosi, A.F.*, +, *TIM June 2019 1870-1878*
- Harmonic Distortion Compensation in Voltage Transformers for Improved Power Quality Measurements. Faifer, M., +, TIM Oct. 2019 3823-3830
- Harmonic Power Standard of VTT MIKES. Lehtonen, T.A., TIM June 2019 2047-2052
- Identification of RF&MW Microcalorimeter Weak Points by Means of Uncertainty Analysis. *Oberto, L., TIM June 2019 1948-1954*
- Improved Sine-Fitting Algorithms for Measurements of Complex Ratio of AC Voltages by Asynchronous Sequential Sampling. *Augustyn, J.*, +, *TIM June 2019 1659-1665*
- Interlaboratory Nanoamp Current Comparison With Subpart-Per-Million Uncertainty. Giblin, S.P., +, TIM June 2019 1996-2002
- Line Impedance Estimation Based on Synchrophasor Measurements for Power Distribution Systems. *Pegoraro, P.A.*, +, *TIM April 2019 1002-1013*
- Measurement of Submilligram Masses Using Electrostatic Force. *Shaw, G.A.*, +, *TIM June 2019 2015-2020*
- Measurement Uncertainty of Precise Interpolating Time Counters. *Szplet, R.*, +, *TIM Nov. 2019 4348-4356*
- Novel Broadband Calibration Method of Current Shunts Based on VNA. Ouameur, M., +, TIM March 2019 854-863
- On the Design of Force Sensors Based on Frustrated Total Internal Reflection. Lavatelli, A., +, TIM Oct. 2019 4065-4074
- Optimization Procedure for the Determination of Faraday's Voltage in UME Kibble Balance (July 2018). *Ahmedov, H.*, +, *TIM June 2019 2172-2175*
- Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501
- Power Calibration of Electrosurgical Units. Arencibia, R.V., +, TIM Dec. 2019 4798-4806
- Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. *Zhao, J.*, +, *TIM Sept. 2019 3268-3277*
- Proposal of a Desynchronized Processing Technique for Assessing High-Frequency Distortion in Power Systems. *Collin, A.J.*, +, *TIM Oct. 2019 3883-3891*
- Radiation-Pressure-Enabled Traceable Laser Sources at CW Powers up to 50 kW. Williams, P.A., +, TIM June 2019 1833-1839
- Realization of Absolute Phase and AC Resistance of Current Shunts by Ratio Measurements. *Bergsten, T., +, TIM June 2019 2041-2046*
- Self-Calibration and Verification of Phase Angle Errors of Two Voltage Dividers at High Frequencies. Shi, Z., +, TIM June 2019 2053-2059
- The Kalman Filter Uncertainty Concept in the Possibility Domain. *Ferrero*, A., +, *TIM Nov. 2019 4335-4347*
- Torsional Balance for Simultaneous Evaluation of Thrust Force and Flow Velocity of Electrostatically Induced Ionic Wind. *Lee, J.R.*, +, *TIM Nov.* 2019 4518-4525
- Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges. *Kim, D.B., +, TIM June 2019 1941-1947*
- Uncertainty Analysis Method Including Influence of Probe Alignment on On-Wafer Calibration Process. Sakamaki, R., +, TIM June 2019 1748-1755

- Uncertainty Analysis of Far-Field Gain Measurement of DRGH Using the Single-Antenna Method and Amplitude Center Distance. *Matsukawa*, S., +, TIM June 2019 1756-1764
- Uncertainty Assessment of Optical Distance Measurements at Micrometer Level Accuracy for Long-Range Applications. *Guillory, J.*, +, *TIM June* 2019 2260-2267
- Using High-Precision Multimeter Digitizer for High Short-Circuit Current Calibration. *Roccato*, *P.E.*, +, *TIM June 2019 2100-2105*
- Voltage Standard Based on Dry-Cooled High-Temperature Superconductor Josephson Junctions. *Khorshev, S.K.*, +, *TIM June 2019 2113-2120*
- Volume Measurement of a <sup>28</sup>Si-Enriched Sphere for a Determination of the Avogadro Constant at NMIJ. *Kuramoto*, *N.*, +, *TIM June 2019 1913-1920*

## Mechanical engineering computing

- An Enhanced Trace Ratio Linear Discriminant Analysis for Fault Diagnosis: An Illustrated Example Using HDD Data. *Yang, A.*, +, *TIM Dec. 2019* 4629-4639
- CGAN-MBL for Reliability Assessment With Imbalanced Transmission Gear Data. Li, J., +, TIM Sept. 2019 3173-3183
- Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network. *Jin, Y., +, TIM April 2019 1026-1034*
- Instantaneous Rotation Speed Measurement System Based on Variable Reluctance Sensors for Torsional Vibration Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2363-2373*
- Intelligent Diagnosis of V-Type Marine Diesel Engines Based on Multifeatures Extracted From Instantaneous Crankshaft Speed. Zhang, M., +, TIM March 2019 722-740
- Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *Aranzabal*, N., +, *TIM April 2019 1062-1070*
- Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372
- Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V., +, TIM Aug. 2019 2691-2704*
- Tacholess Speed Estimation in Order Tracking: A Review With Application to Rotating Machine Fault Diagnosis. Lu, S., +, TIM July 2019 2315-2332
- Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019* 2819,2829
- Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

# Mechanical variables measurement

A Statistical Approach for Improving the Accuracy of Dry Friction Coefficient Measurement. *Liguori, C.*, +, *TIM May 2019 1412-1423* 

# Medical computing

- Calibration of Vision-Based Measurement of Pain Intensity With Multiple Expert Observers. Casti, P., +, TIM July 2019 2442-2450
- The Influence of Uncertainty Contributions on Deep Learning Architectures in Vision-Based Evaluation Systems. *Callari, G.*, +, *TIM July 2019 2425-2432*

### Medical disorders

- A Movement-Tremors Recorder for Patients of Neurodegenerative Diseases. Gugliandolo, G., +, TIM May 2019 1451-1457
- Accurate Classification of Seizure and Seizure-Free Intervals of Intracranial EEG Signals From Epileptic Patients. *Lahmiri*, S., +, TIM March 2019 791-796
- Detection of Spikes With Defined Parameters in the ECoG Signal. *Kolodziej, M.*, +, *TIM April 2019 1045-1052*

# Medical image processing

- 3-D Hemorrhage Imaging by Cambered Magnetic Induction Tomography. *Xiao*, Z., +, *TIM July 2019 2460-2468*
- k-Space-Based Enhancement of Pulmonary Hyperpolarized <sup>129</sup>Xe Ventilation Images. Deng, H., +, TIM Oct. 2019 3950-3961
- A Movement-Tremors Recorder for Patients of Neurodegenerative Diseases. Gugliandolo, G., +, TIM May 2019 1451-1457
- A Robust Inclusion Boundary Reconstructor for Electrical Impedance Tomography With Geometric Constraints. Ren, S., +, TIM March 2019 762-773

- Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network. Wei, X., +, TIM Nov. 2019 4481-4492
- Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. *Yin, M.*, +, *TIM Jan.* 2019 49-64
- Multimodal Sensor Medical Image Fusion Based on Local Difference in Non-Subsampled Domain. Kong, W., +, TIM April 2019 938-951
- Off-the-Shelf Measurement Setup for Compressive Imaging. *Ralasic, I.*, +, *TIM Feb. 2019 502-511*
- Pulse Pileup Correction of Signals From a Pyroelectric Sensor for Phase-Insensitive Ultrasound Computed Tomography. Baker, C., +, TIM Oct. 2019 3920-3931
- The ACE1 Electrical Impedance Tomography System for Thoracic Imaging. Mellenthin, M.M., +, TIM Sept. 2019 3137-3150
- The Influence of Uncertainty Contributions on Deep Learning Architectures in Vision-Based Evaluation Systems. *Callari, G., +, TIM July 2019 2425-2432*
- Video-Based Heart Rate Measurement: Recent Advances and Future Prospects. Chen, X., +, TIM Oct. 2019 3600-3615

#### Medical robotics

Design of a Novel Elastic Torque Sensor for Hand Injuries Rehabilitation Based on Bowden Cable. *Zhang, F., +, TIM Sept. 2019 3184-3192* 

#### Medical signal detection

- A Robust Pulse Onset and Peak Detection Method for Automated PPG Signal Analysis System. *Vadrevu*, S., +, TIM March 2019 807-817
- A Robust Wrist Pulse Acquisition System Based on Multisensor Collaboration and Signal Quality Assessment. *Jiang, Z.*, +, *TIM Dec. 2019 4807-4816*
- A Single-Channel SSVEP-Based Instrument With Off-the-Shelf Components for Trainingless Brain-Computer Interfaces. *Angrisani*, L., +, TIM Oct. 2019 3616-3625
- Accurate Classification of Seizure and Seizure-Free Intervals of Intracranial EEG Signals From Epileptic Patients. *Lahmiri*, S., +, TIM March 2019 791-796
- Characterization of S<sub>1</sub> and S<sub>2</sub> Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, M., +, TIM Sept. 2019 3211-3220
- Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli*, A., +, *TIM July 2019 2433-2441*
- Detection of Spikes With Defined Parameters in the ECoG Signal. *Kolodziej, M.*, +, *TIM April 2019 1045-1052*

## Medical signal processing

- A Measurement System to Estimate the Pleural Pressure From the CVP for Respiratory System Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2469-2478*
- A Multiview Discriminant Feature Fusion-Based Nonlinear Process Assessment and Diagnosis: Application to Medical Diagnosis. *Hazarika, A.*, +, *TIM July 2019 2498-2506*
- A Robust Pulse Onset and Peak Detection Method for Automated PPG Signal Analysis System. *Vadrevu*, S., +, TIM March 2019 807-817
- A Single-Channel SSVEP-Based Instrument With Off-the-Shelf Components for Trainingless Brain-Computer Interfaces. *Angrisani*, L., +, *TIM Oct.* 2019 3616-3625
- Accurate Classification of Seizure and Seizure-Free Intervals of Intracranial EEG Signals From Epileptic Patients. *Lahmiri*, S., +, TIM March 2019 791-796
- An Extended Kalman Filter for Fetal Heart Location Estimation During Doppler-Based Heart Rate Monitoring. *Hamelmann*, P., +, TIM Sept. 2019 3221-3231
- Characterization of S<sub>1</sub> and S<sub>2</sub> Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, M., +, TIM Sept. 2019 3211-3220
- Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli*, A., +, *TIM July 2019 2433-2441*
- Gait Nonlinear Patterns Related to Parkinson's Disease and Age. *Lahmiri*, S., *TIM July 2019 2545-2551*
- Motion-Artifact Reduction in Capacitive Heart-Rate Measurements by Adaptive Filtering. Xu, L., +, TIM Oct. 2019 4085-4093
- Pilots' Fatigue Status Recognition Using Deep Contractive Autoencoder Network. Wu, E.Q., +, TIM Oct. 2019 3907-3919

Relative Wavelet Entropy Complex Network for Improving EEG-Based Fatigue Driving Classification. *Gao*, Z., +, *TIM July 2019 2491-2497* 

### Meetings

Conference on Precision Electromagnetic Measurements (CPEM 2018). Allal, D., +, TIM June 2019 1652

Guest Editors' Foreword Special Section on the 2018 IEEE International Workshop on Applied Measurements for Power Systems (AMPS 2018) Bologna, Italy, September 26–28, 2018. Ferrero, R., +, TIM Oct. 2019 3799-3800

Special Issue for I<sup>2</sup>MTC 2018. *Rapuano*, S., +, *TIM May 2019 1235-1237* 

## Mel frequency cepstral coefficient

An Inhaler Tracking System Based on Acoustic Analysis: Hardware and Software. Xie, W., +, TIM Nov. 2019 4472-4480

#### Mercury (metal)

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717* 

# Metallurgical industries

Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131

#### Metallurgy

Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. Pan, D., +, TIM Oct. 2019 3576-3588

#### Metals

Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures. Foudazi, A., +, TIM Feb. 2019 576-585

#### Metamaterials

Highly Dispersion Tailored Property of Novel Class of Multimode Surface Plasmon Resonance Biosensor Assisted by Teflon and Metamaterial Layers. *Raghuwanshi*, S.K., +, TIM Aug. 2019 2954-2963

#### Metering

A Computation and Metering Method for Harmonic Emissions of Individual Consumers. *Dirik, H., +, TIM Feb. 2019 412-420* 

### Metrology

Conference on Precision Electromagnetic Measurements (CPEM 2018). Allal, D., +, TIM June 2019 1652

# Microbial fuel cells

A Novel Approach for Microbial Corrosion Assessment. *Iannucci, L.*, +, *TIM May 2019 1424-1431* 

Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. *Mayer, P., +, TIM July 2019 2346-2355* 

### Microchannel flow

3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications. S. B., P., +, TIM July 2019 2648-2655

### Microcomputers

Design and Evaluation of a USB Isolator for Medical Instrumentation. Gonzalez-Briceno, G., +, TIM March 2019 797-806

### Microcontrollers

An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836

Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S.*, +, *TIM July 2019 2335-2345* 

Resolution Enhancement in Directly Interfaced System for Inductive Sensors. *Asif, A.*, +, *TIM Oct. 2019 4104-4111* 

Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. *Mayer, P., +, TIM July 2019 2346-2355* 

## Microelectromechanical systems

A Multisignal Wavelet Variance-Based Framework for Inertial Sensor Stochastic Error Modeling. *Radi*, A., +, *TIM Dec.* 2019 4924-4936

# Microfabrication

Comparative Study on Modeling Approaches of V-Shaped MEMS Temperature Sensors. Cohen, Y., +, TIM Oct. 2019 3766-3775

QCM-Micropillar-Based Coupled Resonators in the Detection of Gas Mass Flow Rates. *Kashan, M.A.M.*, +, *TIM Jan. 2019 303-305* 

#### Microfluidics

3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications. S. B., P., +, TIM July 2019 2648-2655

#### Micromanipulators

Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient. *Zhang, X.*, +, *TIM March 2019 680-687* 

#### Micromechanical devices

Evaluation of Experimental GNSS and 10-DOF MEMS IMU Measurements for Train Positioning. *Otegui*, *J.*, +, *TIM Jan. 2019 269-279* 

#### Micromechanical resonators

QCM-Micropillar-Based Coupled Resonators in the Detection of Gas Mass Flow Rates. *Kashan, M.A.M.*, +, *TIM Jan. 2019 303-305* 

#### Microorganisms

A Current-Driven Six-Channel Potentiostat for Rapid Performance Characterization of Microbial Electrolysis Cells. *Molderez*, *T.R.*, +, *TIM Dec.* 2019 4694-4702

A New Device Based on Interferometric Optical Detection Method for Label-Free Screening of C-Reactive Protein. *Maigler, M.V., +, TIM Sept.* 2019;3193-3199

A Novel Approach for Microbial Corrosion Assessment. *Iannucci, L.*, +, TIM May 2019 1424-1431

#### Microphone arrays

Doppler Distortion Removal in Wayside Circular Microphone Array Signals. Ouyang, K., +, TIM May 2019 1238-1251

Unattended Acoustic Sensor Systems For Source Detection, Classification, and Tracking. *Yaremenko*, V., +, *TIM Feb. 2019 344-354* 

# Microrobots

Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient. *Zhang, X.*, +, *TIM March 2019 680-687* 

# Microscopy

Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy. Wei, Z., +, TIM Jan. 2019 197-205

### Microsensors

Characterization of a Type-N Coaxial Microcalorimeter for Use as Microwave Power Standard at CENAM. *Botello-Perez, M.*, +, *TIM Feb. 2019* 558-565

Comparative Study on Modeling Approaches of V-Shaped MEMS Temperature Sensors. *Cohen, Y.*, +, *TIM Oct. 2019 3766-3775* 

Height Measurement in Seamless Indoor/Outdoor Infrastructure-Free Navigation. Rantanen, J., +, TIM April 2019 1199-1209

Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. *Das, S., +, TIM Sept. 2019 3308-3320* 

QCM-Micropillar-Based Coupled Resonators in the Detection of Gas Mass Flow Rates. *Kashan, M.A.M.*, +, *TIM Jan. 2019 303-305* 

## Microstrip antennas

On the One-Antenna Gain Measurement Method in Probe Station Environment at mm-Wave Frequencies. *Zheng, J.*, +, *TIM Nov. 2019 4510-4517* 

## Microstrip filters

Design and Implementation of a High-Sensitivity and Compact-Size IFM Receiver. Rahimpour, H., +, TIM July 2019 2602-2609

### Microstrip lines

A High-Frequency and High Spatial Resolution Probe Design for EMI Prediction. *Yang, R.*, +, *TIM Aug. 2019 3012-3019* 

A High-Sensitivity Resonant Tangential E-Probe With Loaded Improved Dipole and Embedded Integrated Balun. Wang, J., +, TIM Aug. 2019 3042-3044

Concentration Measurement of Microliter-Volume Water-Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

## Microstrip resonators

Concentration Measurement of Microliter-Volume Water-Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

#### Microstrip transitions

Partially Filled Substrate Integrated Waveguide-Based Microwave Technique for Broadband Dielectric Characterization. *Tiwari, N.K.*, +, *TIM Aug. 2019 2907-2915* 

#### Microwave antennas

Uncertainty Analysis of Far-Field Gain Measurement of DRGH Using the Single-Antenna Method and Amplitude Center Distance. *Matsukawa*, S., +, *TIM June 2019 1756-1764* 

### Microwave detectors

Concentration Measurement of Microliter-Volume Water–Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

Harmonics Effects on Microwave Power Measurement Using Diode Sensors. Drazil, K., +, TIM June 2019 1852-1859

Measurement Capability of Scanning Microwave Microscopy: Measurement Sensitivity Versus Accuracy. *Horibe, M.*, +, *TIM June 2019 1774-1780* 

#### Microwave diodes

Harmonics Effects on Microwave Power Measurement Using Diode Sensors. Drazil, K., +, TIM June 2019 1852-1859

#### Microwave field effect transistors

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. Urbonas, J., +, TIM Aug. 2019 2971-2978

#### Microwave filters

Improved-Sensitivity Resonant Electric-Field Probes Based on Planar Spiral Stripline and Rectangular Plate Structure. Wang, J., +, TIM March 2019 882-894

#### Microwave generation

Calibration of Gigahertz Microwave Generator for the Programmable Josephson Voltage Standard at NRC. *Gertsvolf, M.*, +, *TIM June 2019 1901-1906* 

#### Microwave imaging

Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures. Foudazi, A., +, TIM Feb. 2019 576-585

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. Urbonas, J., +, TIM Aug. 2019 2971-2978

Nondestructive Evaluation of Microwave-Penetrable Pipes by Synthetic Aperture Imaging Enhanced by Full-Wave Field Propagation Model. Laviada, J., +, TIM April 2019 1112-1119

Performance Evaluation of a Time-Domain Microwave System for Medical Diagnostics. Zeng, X., +, TIM Aug. 2019 2880-2889

Wideband Substrate-Integrated Cavity-Backed Elliptical Slot for Microwave Synthetic Aperture Imaging. Xingyu, X., +, TIM July 2019 2665-2667

# Microwave measurement

Broadband Permittivity Measurements up to 170-GHz Using Balanced-Type Circular-Disk Resonator Excited by 0.8-mm Coaxial Line. *Kato, Y., +, TIM June 2019 1796-1805* 

Calibration of Gigahertz Microwave Generator for the Programmable Josephson Voltage Standard at NRC. Gertsvolf, M., +, TIM June 2019 1901-1906

Characterization of a Type-N Coaxial Microcalorimeter for Use as Microwave Power Standard at CENAM. *Botello-Perez, M.*, +, *TIM Feb. 2019* 558-565

Concentration Measurement of Microliter-Volume Water–Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. *Urbonas*, J., +, TIM Aug. 2019 2971-2978

Effect of Instrument Frequency Uncertainty on Wideband Microwave Synthetic Aperture Radar Images. Horst, M.J., +, TIM Jan. 2019 151-159

Harmonics Effects on Microwave Power Measurement Using Diode Sensors. Drazil, K., +, TIM June 2019 1852-1859

Identification of RF&MW Microcalorimeter Weak Points by Means of Uncertainty Analysis. *Oberto, L., TIM June 2019 1948-1954* 

Improvement of Broadband Characterization of Dielectric Waveguide at the *Ka*-Band by Using TRL Calibration Method. *Kato*, Y., +, *TIM June 2019* 1788-1795

Measurement Capability of Scanning Microwave Microscopy: Measurement Sensitivity Versus Accuracy. *Horibe, M.*, +, *TIM June 2019 1774-1780* 

NIST-Traceable Microwave Power Measurement in a Waveguide Calorimeter With Correlated Uncertainties. Gu, D., +, TIM June 2019 2280-2287

Null Technique for Precision RF Phase Shift Measurements. Widarta, A., TIM June 2019 1840-1843

Partially Filled Substrate Integrated Waveguide-Based Microwave Technique for Broadband Dielectric Characterization. *Tiwari, N.K.*, +, *TIM Aug. 2019 2907-2915* 

Towards Accurate and Wideband *In Vivo* Measurement of Skin Dielectric Properties. *Gao*, Y., +, *TIM Feb. 2019 512-524* 

Uncertainty Analysis of Far-Field Gain Measurement of DRGH Using the Single-Antenna Method and Amplitude Center Distance. *Matsukawa, S.*, +, *TIM June 2019 1756-1764* 

#### Microwave oscillators

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. *Urbonas, J.*, +, *TIM Aug. 2019 2971-2978* 

#### Microwave power amplifiers

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. Urbonas, J., +, TIM Aug. 2019 2971-2978

# Microwave reflectometry

Nondestructive Testing of Nonmetallic Pipelines Using Microwave Reflectometry on an In-Line Inspection Robot. *Carrigan, T.D.*, +, *TIM Feb. 2019* 586-594

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Broadband Permittivity Measurements up to 170-GHz Using Balanced-Type Circular-Disk Resonator Excited by 0.8-mm Coaxial Line. *Kato, Y., +, TIM June 2019 1796-1805* 

#### Millimeter wave antennas

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. *Horst, M.J.*, +, *TIM Nov. 2019 4400-4411* 

Measurement System for Millimeter-Wave Antennas With Distributed External Local Oscillators and Mixers. *Kang, N.*, +, *TIM June 2019 1967-1972* 

On the One-Antenna Gain Measurement Method in Probe Station Environment at mm-Wave Frequencies. *Zheng, J.*, +, *TIM Nov. 2019 4510-4517* 

### Millimeter wave field effect transistors

Direct *E*-Field Measurement and Imaging of Oscillations Within Power Amplifiers. *Urbonas, J., +, TIM Aug. 2019 2971-2978* 

## Millimeter wave imaging

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. *Horst, M.J.*, +, *TIM Nov. 2019 4400-4411* 

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. Urbonas, J., +, TIM Aug. 2019 2971-2978

Point Cloud and 3-D Surface Reconstruction Using Cylindrical Millimeter-Wave Holography. *Gao*, *J.*, +, *TIM Dec. 2019 4765-4778* 

# Millimeter wave measurement

Broadband Permittivity Measurements up to 170-GHz Using Balanced-Type Circular-Disk Resonator Excited by 0.8-mm Coaxial Line. *Kato, Y., +, TIM June 2019 1796-1805* 

Direct *E*-Field Measurement and Imaging of Oscillations Within Power Amplifiers. *Urbonas, J., +, TIM Aug. 2019 2971-2978* 

Establishing a New Form of Primary Impedance Standard at Millimeter-Wave Frequencies. Azeez, Y.F., +, TIM Jan. 2019 294-296

Measurement System for Millimeter-Wave Antennas With Distributed External Local Oscillators and Mixers. Kang, N., +, TIM June 2019 1967-1972

Towards Accurate and Wideband *In Vivo* Measurement of Skin Dielectric Properties. *Gao*, Y., +, *TIM Feb. 2019 512-524* 

# Millimeter wave mixers

Measurement System for Millimeter-Wave Antennas With Distributed External Local Oscillators and Mixers. Kang, N., +, TIM June 2019 1967-1972

# Millimeter wave oscillators

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. Urbonas, J., +, TIM Aug. 2019 2971-2978

Measurement System for Millimeter-Wave Antennas With Distributed External Local Oscillators and Mixers. *Kang, N.*, +, *TIM June 2019 1967-1972* 

# Millimeter wave phase shifters

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. Urbonas, J., +, TIM Aug. 2019 2971-2978

#### Millimeter wave resonators

Broadband Permittivity Measurements up to 170-GHz Using Balanced-Type Circular-Disk Resonator Excited by 0.8-mm Coaxial Line. *Kato, Y., +, TIM June 2019 1796-1805* 

#### **MIMO** communication

Design of Experiments to Compare Base Station Antenna Configurations. Caban, S., +, TIM Oct. 2019 3484-3493

Throughput Analysis for Virtual MIMO WSNs Over Measured MIMO Channels. *Dey, I., +, TIM Jan. 2019 297-299* 

# Minimax techniques

Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461

#### Minimization

A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902

A Self-Gap-Correction Method for Accurate Permittivity Measurement Using the Hybrid Optimization Algorithm. *Xu*, *H*., +, *TIM June 2019 1781-1787* 

#### Minimum shift keying

Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems. *Gupta, R.*, +, *TIM Aug.* 2019 3020-3031

#### Mirrors

Characterization of a Nanometer Displacement Gauge for the Dimensional Control of Large Optomechanical Structures. *Donazzan*, A., +, *TIM April* 2019 1165-1177

Characterization of the Vacuum Birefringence Polarimeter at BMV: Dynamical Cavity Mirror Birefringence. *Hartman, M.T.*, +, *TIM June 2019 2268-2273* 

Disturbance Observer-Based Control of Tip-Tilt Mirror for Mitigating Telescope Vibrations. *Tang, T.*, +, *TIM Aug. 2019 2785-2791* 

Practical Application of Latest Optimal Hollow Active Auxiliary Electrode in Vertical Calculable Cross-Capacitor at NIM. *Huang, L.*, +, *TIM June* 2019 2144-2150

# Mobile computing

An Indoor Ultrasonic System for Autonomous 3-D Positioning. *Carotenuto*, R., +, TIM July 2019 2507-2518

# Mobile radio

Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking. *Tian*, Q., +, *TIM Oct.* 2019 4028-4037

### Mobile robots

Calibration and Characterization of a Magnetic Positioning System Using a Robotic Arm. Santoni, F., +, TIM May 2019 1494-1502

Effective Landmark Placement for Robot Indoor Localization With Position Uncertainty Constraints. *Magnago*, V., +, *TIM Nov.* 2019 4443-4455

Informational Framework for Minimalistic Visual Odometry on Outdoor Robot. Al Hage, J., +, TIM Aug. 2019 2988-2995

Monocular Vision-Based Parameter Estimation for Mobile Robotic Painting. Zhao, Q., +, TIM Oct. 2019 3589-3599

Nondestructive Testing of Nonmetallic Pipelines Using Microwave Reflectometry on an In-Line Inspection Robot. *Carrigan, T.D.*, +, *TIM Feb. 2019* 586-594

OPTICS-Based Template Matching for Vision Sensor-Based Shoe Detection in Human–Robot Coexisting Environments. *Paral*, *P.*, +, *TIM Nov. 2019* 4276-4284

RGB-DI Images and Full Convolution Neural Network-Based Outdoor Scene Understanding for Mobile Robots. Qiu, Z., +, TIM Jan. 2019 27-37

# Mobility management (mobile radio)

A Low-Cost Approach of Magnetic Field-Based Location Validation for Global Navigation Satellite Systems. *Huang, G.*, +, *TIM Dec. 2019 4937-4944* 

### Model reference adaptive control systems

Novel Complex-Valued Stator Current-Based MRAS Estimators With Different Adaptation Mechanisms. Zerdali, E., +, TIM Oct. 2019 3793-3795

# Modulation spectroscopy

Self-Calibrated Multiharmonic CO<sub>2</sub> Sensor Using VCSEL for Urban *In Situ* Measurement. *Lan, L., +, TIM April 2019 1140-1147* 

#### Modulators

Nonlinear Characterization and Distortion Mitigation in Six-Port Modulator. Pathak, C., +, TIM April 2019 1178-1188

#### Moisture measurement

A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. de Morais Franca, M.B., +, TIM Feb. 2019 606-613

Design and Characterization of a Fringing Field Capacitive Soil Moisture Sensor. *Protim Goswami, M.*, +, *TIM March 2019 913-922* 

PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. Chakraborty, M., +, TIM Jan. 2019 189-196

#### Molecular biophysics

A New Device Based on Interferometric Optical Detection Method for Label-Free Screening of C-Reactive Protein. *Maigler, M.V.*, +, *TIM Sept.* 2019 3193-3199

#### Molecule-photon collisions

Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants. *Constantin, F.L., TIM June 2019 2151-2159* 

# Monitoring

Fiber Optic Sensors Based on Photoacoustic Effect for Rebar Corrosion Measurement. Du, C., +, TIM Nov. 2019 4559-4565

Full Optical Fiber Link Characterization With the BSS-Lasso. Saavedra, R., +, TIM Oct. 2019 4162-4174

### Monopole antennas

Improved-Sensitivity Resonant Electric-Field Probes Based on Planar Spiral Stripline and Rectangular Plate Structure. Wang, J., +, TIM March 2019 882-894

# Monte Carlo methods

A Dual-Interferometer-Based Angular Measurement System With Absolute Angle Recovery Method. Serrano Galvez, P., +, TIM March 2019 864-873

A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902

A Novel Global Localization Approach Based on Structural Unit Encoding and Multiple Hypothesis Tracking. Gao, H., +, TIM Nov. 2019 4427-4442

Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems. *Gupta, R.*, +, *TIM Aug.* 2019 3020-3031

Dynamic Frequency and Amplitude Estimation for Three-Phase Unbalanced Power Systems Using the Unscented Kalman Filter. Wu, C., +, TIM Sept. 2019 3387-3395

Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131

Uncertainty Analysis Method Including Influence of Probe Alignment on On-Wafer Calibration Process. Sakamaki, R., +, TIM June 2019 1748-1755

Uncertainty Bounds of Transmission Line Parameters Estimated From Synchronized Measurements. *Asprou, M.*, +, *TIM Aug. 2019 2808-2818* 

## **Motion control**

Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient. *Zhang, X.*, +, *TIM March 2019 680-687* Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. *Zhao, J.*, +, *TIM Sept. 2019 3268-3277* 

### Motion estimation

FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386* 

### Motion measurement

Online Precise Motion Measurement of 3-DOF Nanopositioners Based on Image Correlation. *Li*, *H*., +, *TIM March 2019 782-790* 

Performance Analysis of the PMD Camboard Picoflexx Time-of-Flight Camera for Markerless Motion Capture Applications. *Pasinetti, S.*, +, *TIM Nov. 2019 4456-4471* 

# Motorcycles

Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli*, A., +, *TIM July 2019 2433-2441* 

Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372

### Multilayers

Highly Dispersion Tailored Property of Novel Class of Multimode Surface Plasmon Resonance Biosensor Assisted by Teflon and Metamaterial Layers. *Raghuwanshi*, S.K., +, TIM Aug. 2019 2954-2963

Nonlinear Reconstruction of Multilayer Media in Scanning Microwave Microscopy. Wei, Z., +, TIM Jan. 2019 197-205

Thickness and Conductivity Measurement of Multilayered Electricity-Conducting Coating by Pulsed Eddy Current Technique: Experimental Investigation. Wang, Z., +, TIM Sept. 2019 3166-3172

#### Multimeter

Using High-Precision Multimeter Digitizer for High Short-Circuit Current Calibration. *Roccato*, *P.E.*, +, *TIM June 2019 2100-2105* 

#### Multipath channels

A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh, S.*, +, *TIM March* 2019 646-655

Reducing RF Distance Error by Characterizing Multipath. Whitney, A.M., +, TIM Sept. 2019 3329-3338

TOA Estimation of Chirp Signal in Dense Multipath Environment for Low-Cost Acoustic Ranging. Zhang, L., +, TIM Feb. 2019 355-367

# Multiphase flow

Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan, Z.*, +, *TIM Feb. 2019 462-473* 

# Multiplying circuits

Errors of Multiplying D/A Converters Used for Precise AC Voltage Division. Rybski, R., +, TIM June 2019 1821-1826

# Multivariable control systems

Fault Detection for Rolling-Element Bearings Using Multivariate Statistical Process Control Methods. *Jin, X.*, +, *TIM Sept. 2019 3128-3136* 

#### Muscle

Measuring the Maximum Power of an *ex vivo* Engineered Muscle Tissue With Isovelocity Shortening Technique. *Pisu*, S., +, *TIM July 2019 2404-2411* 

### N

### **Nanocomposites**

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

## Nanoelectromechanical devices

Electromagnetic Metrology for Nano- Electromechanical Systems. *Hao, L.*, +, *TIM June 2019 1827-1832* 

## Nanoelectronics

Real-Time Prediction for IC Aging Based on Machine Learning. *Huang, K.*, +, *TIM Dec. 2019 4756-4764* 

# Nanofabrication

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha, T.*, +, *TIM March 2019 903-912* 

### Nanofluidics

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana*, M., +, TIM Dec. 2019 4853-4863

### Nanoparticles

A Novel Sensing Methodology to Detect Furfural in Water, Exploiting MIPs, and Inkjet-Printed Optical Waveguides. *Cennamo, N.*, +, *TIM May 2019* 1582-1589

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha, T.*, +, *TIM March 2019 903-912* 

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana*, M., +, TIM Dec. 2019 4853-4863

FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386* 

# Nanopositioning

Online Precise Motion Measurement of 3-DOF Nanopositioners Based on Image Correlation. *Li*, *H*., +, *TIM March 2019 782-790* 

#### Nanosensors

A Novel Sensing Methodology to Detect Furfural in Water, Exploiting MIPs, and Inkjet-Printed Optical Waveguides. *Cennamo*, N., +, *TIM May 2019* 1582-1589

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha, T.*, +, *TIM March 2019 903-912* 

Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. *Acharyya*, D., +, TIM Aug. 2019 3004-3011

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

#### Nanotubo

Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. *Acharyya*, D., +, TIM Aug. 2019 3004-3011

#### Navigation

Electromagnetic Tracking Using Modular, Tiled Field Generators. *Jaeger, H.A.*, +, *TIM Dec. 2019 4845-4852* 

### Nearest neighbor methods

Accurate Classification of Seizure and Seizure-Free Intervals of Intracranial EEG Signals From Epileptic Patients. *Lahmiri*, S., +, TIM March 2019 791-796

#### Network analyzers

Asynchronous Optical Sampling for Laser-Based Vector Network Analysis on Coplanar Waveguides. Struszewski, P., +, TIM June 2019 2295-2302

Direct *E*-Field Measurement and Imaging of Oscillations Within Power Amplifiers. *Urbonas*, *J.*, +, *TIM Aug*. 2019 2971-2978

Improvement of Broadband Characterization of Dielectric Waveguide at the *Ka*-Band by Using TRL Calibration Method. *Kato, Y.*, +, *TIM June 2019* 1788-1795

NIST-Traceable Microwave Power Measurement in a Waveguide Calorimeter With Correlated Uncertainties. *Gu, D.*, +, *TIM June 2019 2280-2287* 

Novel Broadband Calibration Method of Current Shunts Based on VNA. Ouameur, M., +, TIM March 2019 854-863

On-Wafer Coplanar Waveguide Standards for S-Parameter Measurements of Balanced Circuits Up to 40 GHz. *Pham, T.D.*, +, *TIM June 2019 2160-2167* 

# Neural networks

A Novel Approach for the Error Correction of CT in the Presence of Harmonic Distortion. *Ballal, M.S.*, +, *TIM Oct. 2019 4015-4027* 

A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings. *Hong, K.*, +, *TIM April 2019 1221-1229*An Improved Load Flow Method for MV Networks Based on LV Load Measurements and Estimations. *Cataliotti, A.*, +, *TIM Feb. 2019 430-438* 

Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning. *Kao, I., +, TIM Feb. 2019 310-324* 

CGAN-MBL for Reliability Assessment With Imbalanced Transmission Gear Data. Li, J., +, TIM Sept. 2019 3173-3183

Decentralized Load Estimation for Distribution Systems Using Artificial Neural Networks. *Chen, Y., +, TIM May 2019 1333-1342* 

Deep Nearest Class Mean Model for Incremental Odor Classification. Cheng, Y., +, TIM April 2019 952-962

Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks. *Feng, B.*, +, *TIM May 2019 1252-1260* 

Low-order Nonlinear Finite-Impulse Response Soft Sensors for Ionic Electroactive Actuators Based on Deep Learning. *Ando, B., +, TIM May 2019* 1637, 1646

Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. *Yin, M.*, +, *TIM Jan.* 2019 49-64

MLMVNNN for Parameter Fault Detection in PWM DC–DC Converters and Its Applications for Buck and Boost DC–DC Converters. *Luchetta*, A., +, *TIM Feb. 2019 439-449* 

Nonlinear Characterization and Distortion Mitigation in Six-Port Modulator. Pathak, C., +, TIM April 2019 1178-1188

Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372 Reducing RF Distance Error by Characterizing Multipath. Whitney, A.M., +, TIM Sept. 2019 3329-3338

RideNN: A New Rider Optimization Algorithm-Based Neural Network for Fault Diagnosis in Analog Circuits. *Binu*, D., +, *TIM Jan*. 2019 2-26

Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. *Pan, D.*, +, *TIM Oct.* 2019 3576-3588

#### Neurophysiology

A Movement-Tremors Recorder for Patients of Neurodegenerative Diseases. Gugliandolo, G., +, TIM May 2019 1451-1457

Accurate Classification of Seizure and Seizure-Free Intervals of Intracranial EEG Signals From Epileptic Patients. *Lahmiri*, S., +, TIM March 2019 791-796

Detection of Spikes With Defined Parameters in the ECoG Signal. *Kolodziej*, M., +, TIM April 2019 1045-1052

Gait Nonlinear Patterns Related to Parkinson's Disease and Age. *Lahmiri*, S., TIM July 2019 2545-2551

#### Newton method

Online Precise Motion Measurement of 3-DOF Nanopositioners Based on Image Correlation. *Li*, *H*., +, *TIM March 2019 782-790* 

#### Nitrogen compounds

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

#### Noise

Noise Synthesis Technique in Time Domain for Metrology Application. *Gu*, *D.*, +, *TIM June 2019 2288-2294* 

#### Noise measurement

In-Motion Coarse Alignment Based on the Vector Observation for SINS. Zhang, T., +, TIM Oct. 2019 3740-3750

#### Nondestructive testing

Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures. Foudazi, A., +, TIM Feb. 2019 576-585

An Opening Profile Recognition Method for Magnetic Flux Leakage Signals of Defect. *Huang, S.*, +, *TIM June 2019 2229-2236* 

Comparison Study of Different Features for Pocket Length Quantification of Angular Defects Using Eddy Current Pulsed Thermography. Zhu, J., +, TIM May 2019 1373-1381

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. Horst, M.J., +, TIM Nov. 2019 4400-4411

Detecting Defects in Porcelain Postinsulator Coated With Room Temperature Vulcanized Silicone Rubber by Pulsed Thermography. *Liu*, *L.*, +, *TIM Jan.* 2019 225-233

Effect of Instrument Frequency Uncertainty on Wideband Microwave Synthetic Aperture Radar Images. Horst, M.J., +, TIM Jan. 2019 151-159

High-Density Large-Scale TMR Sensor Array for Magnetic Field Imaging. Ye, C., +, TIM July 2019 2594-2601

Nondestructive Evaluation of Microwave-Penetrable Pipes by Synthetic Aperture Imaging Enhanced by Full-Wave Field Propagation Model. Laviada, J., +, TIM April 2019 1112-1119

Nondestructive Testing of Nonmetallic Pipelines Using Microwave Reflectometry on an In-Line Inspection Robot. *Carrigan, T.D.*, +, *TIM Feb. 2019* 586-594

## Noninvasive treatment

Noninvasive Acoustoelectric Imaging of Resistivity Distribution Based on Lead Field Theory. *Song, X.*, +, *TIM Dec. 2019 4779-4786* 

# Nonlinear acoustics

Investigation of Material Nonlinearity Measurements Using the Third-Harmonic Generation. Zhang, S., +, TIM Oct. 2019 3635-3646

# Nonlinear control systems

Novel Complex-Valued Stator Current-Based MRAS Estimators With Different Adaptation Mechanisms. Zerdali, E., +, TIM Oct. 2019 3793-3795

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao, X.*, +, *TIM Nov. 2019 4285-4299* 

### Nonlinear distortion

FRF Measurements Subject to Missing Data: Quantification of Noise, Nonlinear Distortion, and Time-Varying Effects. *Pintelon, R.*, +, *TIM Oct. 2019* 4175-4187

#### Nonlinear dynamical systems

Detection of Winding Faults Based on a Characterization of the Nonlinear Dynamics of Transformers. *Zheng, J., +, TIM Jan. 2019 206-214* 

Wiener-Hammerstein System Identification: A Fast Approach Through Spearman Correlation. Shaikh, M.A.H., +, TIM May 2019 1628-1636

#### Nonlinear filters

A Novel Measurement Data Classification Algorithm Based on SVM for Tracking Closely Spaced Targets. Zhao, Z., +, TIM April 2019 1089-1100

An Extended Kalman Filter for Fetal Heart Location Estimation During Doppler-Based Heart Rate Monitoring. *Hamelmann*, P., +, TIM Sept. 2019 3221-3231

Dynamic Frequency and Amplitude Estimation for Three-Phase Unbalanced Power Systems Using the Unscented Kalman Filter. Wu, C., +, TIM Sept. 2019 3387-3395

Evaluation of Experimental GNSS and 10-DOF MEMS IMU Measurements for Train Positioning. *Otegui*, J., +, *TIM Jan. 2019 269-279* 

Sensory Fusion of Magnetoinertial Data Based on Kinematic Model With Jacobian Weighted-Left-Pseudoinverse and Kalman-Adaptive Gains. Mihelj, M., +, TIM July 2019 2610-2620

#### Nonlinear programming

A Differential Accelerometer System: Offline Calibration and State Estimation. Belkhouche, F., TIM Sept. 2019 3109-3118

#### Nozzles

Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061

#### **Nuclear electronics**

A Review of New Time-to-Digital Conversion Techniques. *Tancock*, S., +, *TIM Oct.* 2019 3406-3417

An Advanced 100-Channel Readout System for Nuclear Imaging. Zhao, Z., +, TIM Sept. 2019 3200-3210

## **Nuclear power stations**

Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019* 215-224

### Numerical analysis

A Measurement System to Estimate the Pleural Pressure From the CVP for Respiratory System Monitoring. *Addabbo*, T., +, TIM July 2019 2469-2478

A Novel Calibration Method for Magnetometer Array in Nonuniform Background Field. Mu, Y., +, TIM Oct. 2019 3677-3685

A SAR-Based Measurement Method for Passive-Tag Positioning With a Flying UHF-RFID Reader. *Buffi*, A., +, *TIM March 2019 845-853* 

A Statistical Approach for Improving the Accuracy of Dry Friction Coefficient Measurement. *Liguori, C.*, +, *TIM May 2019 1412-1423* 

FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386* 

Localization of a Mobile Platform Equipped With a Rotating Magnetic Dipole Source. Sheinker, A., +, TIM Jan. 2019 116-128

Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061

0

# Object detection

A CNN-Based Defect Inspection Method for Catenary Split Pins in High-Speed Railway. *Zhong, J.*, +, *TIM Aug. 2019 2849-2860* 

A Coarse-to-Fine Model for Rail Surface Defect Detection. Yu, H., +, TIM March 2019 656-666

Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. *He, Q.*, +, *TIM Oct. 2019 3456-3467* 

OPTICS-Based Template Matching for Vision Sensor-Based Shoe Detection in Human–Robot Coexisting Environments. *Paral, P.*, +, *TIM Nov. 2019* 4276-4284

PAC Interaction Inspection Using Real-Time Contact Point Tracking. *Shen*, *Y*, +, *TIM Oct.* 2019 4051-4064

Real-Time Image-Based Defect Inspection System of Internal Thread for Nut. Lin, C., +, TIM Aug. 2019 2830-2848

Robust Visual Detection and Tracking Strategies for Autonomous Aerial Refueling of UAVs. Sun, S., +, TIM Dec. 2019 4640-4652

### Object recognition

Binary Volumetric Convolutional Neural Networks for 3-D Object Recognition. *Ma*, *C.*, +, *TIM Jan. 2019 38-48* 

#### Object tracking

Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking. *Tian*, *Q*., +, *TIM Oct.* 2019 4028-4037

PAC Interaction Inspection Using Real-Time Contact Point Tracking. Shen, Y, +, TIM Oct. 2019 4051-4064

Robust Visual Detection and Tracking Strategies for Autonomous Aerial Refueling of UAVs. Sun, S., +, TIM Dec. 2019 4640-4652

#### Observers

Calibration of Vision-Based Measurement of Pain Intensity With Multiple Expert Observers. Casti, P., +, TIM July 2019 2442-2450

Disturbance Observer-Based Control of Tip-Tilt Mirror for Mitigating Telescope Vibrations. *Tang, T.*, +, *TIM Aug. 2019 2785-2791* 

Resolver-To-Digital Conversion Based on Acceleration-Compensated Angle Tracking Observer. Wang, F., +, TIM Oct. 2019 3494-3502

#### Obstetrics

An Extended Kalman Filter for Fetal Heart Location Estimation During Doppler-Based Heart Rate Monitoring. *Hamelmann, P., +, TIM Sept. 2019* 3221-3231

#### Ocean waves

In Situ Measurement of Oil Slick Thickness. Saleh, M., +, TIM July 2019 2635-2647

#### Oceanographic equipment

In Situ Measurement of Oil Slick Thickness. Saleh, M., +, TIM July 2019 2635-2647

## Oceanographic techniques

Design of Low-Complexity 3-D Underwater Imaging System With Sparse Planar Arrays. Zhao, D., +, TIM Oct. 2019 3418-3432

## Oil pollution

In Situ Measurement of Oil Slick Thickness. Saleh, M., +, TIM July 2019 2635-2647

## Oils

Measurement of Oil–Water Interface Characteristics in Horizontal Pipe Using a Conductance Parallel-Wire Array Probe. *Zhai, L., +, TIM Sept.* 2019 3232-3243

## On load tap changers

Mechanical Fault Diagnostics of Power Transformer On-Load Tap Changers Using Dynamic Time Warping. *Yang, R.*, +, *TIM Sept. 2019 3119-3127* 

### Operational amplifiers

A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan, S., +, TIM Aug. 2019 2871-2879* 

Electrometer Calibration With Sub-Part-Per-Million Uncertainty. *Scherer, H., +, TIM June 2019 1887-1894* 

Peculiarities of Hardware for Electrochemical Noise Measurement in Chemical Power Sources. *Astafev, E., +, TIM Nov. 2019 4412-4418* 

# Operations research

From Measurement to Decision: Sensitivity of Decision Outcome to Input and Model Uncertainties. Siebert, J., +, TIM Sept. 2019 3100-3108

# Optical delay lines

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

# Optical design techniques

A Rotation Independent In-Place Inclinometer/Tilt Sensor Based on Fiber Bragg Grating. *Maheshwari*, M., +, TIM Aug. 2019 2943-2953

# Optical feedback

FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386* 

## Optical fiber dispersion

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

### Optical fiber fabrication

Highly Sensitive SPR Biosensor Based on Graphene Oxide and Staphylococcal Protein A Co-Modified TFBG for Human IgG Detection. Wang, Q., +, TIM Sept. 2019 3350-3357

#### Optical fiber LAN

Chaotic Encryption Applied to Optical Ethernet in Industrial Control Systems. Perez-Resa, A., +, TIM Dec. 2019 4876-4886

#### Optical fiber networks

Full Optical Fiber Link Characterization With the BSS-Lasso. Saavedra, R., +, TIM Oct. 2019 4162-4174

Linearized Bregman Iterations for Automatic Optical Fiber Fault Analysis. *Lunglmayr, M.*, +, *TIM Oct. 2019 3699-3711* 

# Optical fiber polarization

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

### Optical fiber sensors

Fiber Optic Sensors Based on Photoacoustic Effect for Rebar Corrosion Measurement. Du, C., +, TIM Nov. 2019 4559-4565

Truly Distributed Coaxial Cable Sensing Based on Random Inhomogeneities. Zhu, C., +, TIM Nov. 2019 4600-4607

# Optical fiber testing

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

#### Optical fibers

Evaluation of Fiber Noise Induced in Ultrastable Environments. *Wada*, *M*., +, *TIM June 2019* 2246-2252

FPGA-Based Implementation of an Artificial Neural Network for Measurement Acceleration in BOTDA Sensors. *Abbasnezhad, M.*, +, *TIM Nov.* 2019 4326-4334

# **Optical filters**

An Optical Sampling System for Distributed Atmospheric Particulate Matter. Lombardo, L., +, TIM July 2019 2396-2403

Optical Transition-Edge Sensors: Dependence of System Detection Efficiency on Wavelength. *Hattori, K.*, +, *TIM June 2019 2253-2259* 

## **Optical glass**

An Optical Sampling System for Distributed Atmospheric Particulate Matter. Lombardo, L., +, TIM July 2019 2396-2403

# Optical imaging

3-D Computational Ghost Imaging With Extended Depth of Field for Measurement. Yang, Z., +, TIM Dec. 2019 4906-4912

Measurement of Complex Dielectric Constant Using Optical Method. Sengupta, R., +, TIM June 2019 1814-1820

# Optical information processing

Pseudohigh-Resolution Spectral Interrogation Scheme for Small Signals From FBG Sensors. *Lim, K., +, TIM Aug. 2019 2964-2970* 

# **Optical links**

Chaotic Encryption Applied to Optical Ethernet in Industrial Control Systems. Perez-Resa, A., +, TIM Dec. 2019 4876-4886

### Optical planar waveguides

Asynchronous Optical Sampling for Laser-Based Vector Network Analysis on Coplanar Waveguides. Struszewski, P., +, TIM June 2019 2295-2302

# Optical polarization

Measurement of Complex Dielectric Constant Using Optical Method. Sengupta, R., +, TIM June 2019 1814-1820

# Optical polymers

A Novel Sensing Methodology to Detect Furfural in Water, Exploiting MIPs, and Inkjet-Printed Optical Waveguides. *Cennamo*, *N.*, +, *TIM May 2019 1582-1589* 

## **Optical projectors**

Off-the-Shelf Measurement Setup for Compressive Imaging. Ralasic, I., +, TIM Feb. 2019 502-511

### Optical pulse generation

Asynchronous Optical Sampling for Laser-Based Vector Network Analysis on Coplanar Waveguides. *Struszewski, P., +, TIM June 2019 2295-2302* 

# **Optical pumping**

Magnetic Source Imaging Using a Pulsed Optically Pumped Magnetometer Array. Borna, A., +, TIM Feb. 2019 493-501

### Optical radar

Automatic Generation of Synthetic LiDAR Point Clouds for 3-D Data Analysis. Wang, F., +, TIM July 2019 2671-2673

Pixels and 3-D Points Alignment Method for the Fusion of Camera and LiDAR Data. Xie, S., +, TIM Oct. 2019 3661-3676

#### **Optical rotation**

A Rotation Independent In-Place Inclinometer/Tilt Sensor Based on Fiber Bragg Grating. *Maheshwari*, M., +, TIM Aug. 2019 2943-2953

## Optical scattering

Truly Distributed Coaxial Cable Sensing Based on Random Inhomogeneities. Zhu, C., +, TIM Nov. 2019 4600-4607

#### Optical sensors

A New Device Based on Interferometric Optical Detection Method for Label-Free Screening of C-Reactive Protein. *Maigler, M.V.*, +, *TIM Sept.* 2019 3193-3199

Improving a Commodity Dust Sensor to Enable Particle Size Analysis. *Pedersini*, F., TIM Jan. 2019 177-188

Magnetic Source Imaging Using a Pulsed Optically Pumped Magnetometer Array. Borna, A., +, TIM Feb. 2019 493-501

Measurement of Distorted Power-Frequency Electric Field With Integrated Optical Sensor. *Li*, *Z*., +, *TIM April 2019 1132-1139* 

On the Design of Force Sensors Based on Frustrated Total Internal Reflection. Lavatelli, A., +, TIM Oct. 2019 4065-4074

Optical Transition-Edge Sensors: Dependence of System Detection Efficiency on Wavelength. *Hattori, K.*, +, *TIM June 2019 2253-2259* 

Product-Specific Nonlinear Characterization and Instrument for Illumination Angle Measurement With Manufacturing Defects. *Liu, G.*, +, *TIM Sept. 2019 3299-3307* 

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717* 

Video-Based Heart Rate Measurement: Recent Advances and Future Prospects. Chen, X., +, TIM Oct. 2019 3600-3615

Wearable Inverse Light-Emitting Diode Sensor for Measuring Light Intensity at Specific Wavelengths in Light Therapy. *Tsai*, *H*., +, *TIM May 2019* 1561-1574

# Optical time-domain reflectometry

Full Optical Fiber Link Characterization With the BSS-Lasso. Saavedra, R., +, TIM Oct. 2019 4162-4174

Linearized Bregman Iterations for Automatic Optical Fiber Fault Analysis. *Lunglmayr, M.*, +, *TIM Oct. 2019 3699-3711* 

# Optical transfer function

Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform. *Cortes-Osorio, J.A.*, +, *TIM Oct. 2019 4038-4050* 

### **Optical tuning**

Practical Driving Electronics for an AOTF-Based NO<sub>2</sub> Camera. *Vanhamel*, *J.*, +, *TIM March 2019 874-881* 

# Optical variables measurement

Past and Future of Optical Clocks Toward Redefinition of the SI Second. *Ido*, T., TIM June 2019 2183-2186

Wearable Inverse Light-Emitting Diode Sensor for Measuring Light Intensity at Specific Wavelengths in Light Therapy. *Tsai*, H., +, TIM May 2019 1561-1574

## Optimization

A Novel Calibration Method for Magnetometer Array in Nonuniform Background Field. Mu, Y., +, TIM Oct. 2019 3677-3685

An Efficient and Accurate Link Latency Monitoring Method for Low-Latency Software-Defined Networks. Liao, L., +, TIM Feb. 2019 377-391

An Enhanced Trace Ratio Linear Discriminant Analysis for Fault Diagnosis: An Illustrated Example Using HDD Data. *Yang*, A., +, *TIM Dec.* 2019 4629-4639

Calibration and Characterization of a Magnetic Positioning System Using a Robotic Arm. Santoni, F., +, TIM May 2019 1494-1502

Closed-Loop Optimization of DIC Speckle Patterns Based on Simulated Experiments. *Lavatelli*, A., +, *TIM Nov. 2019 4376-4386* 

Decentralized Load Estimation for Distribution Systems Using Artificial Neural Networks. Chen, Y., +, TIM May 2019 1333-1342

Effective Landmark Placement for Robot Indoor Localization With Position Uncertainty Constraints. *Magnago*, V., +, *TIM Nov.* 2019 4443-4455

Gradient Descent Optimization-Based Self-Alignment Method for Stationary SINS. Li, J., +, TIM Sept. 2019 3278-3286

Measurement System for Millimeter-Wave Antennas With Distributed External Local Oscillators and Mixers. *Kang, N.*, +, *TIM June 2019 1967-1972*Off-the-Shelf Measurement Setup for Compressive Imaging. *Ralasic, I.*, +, *TIM Feb. 2019 502-511* 

Online Precise Motion Measurement of 3-DOF Nanopositioners Based on Image Correlation. *Li*, *H*., +, *TIM March 2019 782-790* 

Optimization Procedure for the Determination of Faraday's Voltage in UME Kibble Balance (July 2018). Ahmedov, H., +, TIM June 2019 2172-2175

Synchronization Uncertainty Versus Power Efficiency in LoRaWAN Networks. *Rizzi, M.*, +, *TIM April 2019 1101-1111* 

Wiener-Hammerstein System Identification: A Fast Approach Through Spearman Correlation. Shaikh, M.A.H., +, TIM May 2019 1628-1636

#### Organic compounds

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha, T.*, +, *TIM March 2019 903-912* 

Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. *Acharyya*, D., +, TIM Aug. 2019 3004-3011

Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501

#### Oscillations

An Interharmonic Phasor and Frequency Estimator for Subsynchronous Oscillation Identification and Monitoring. *Chen, L.*, +, *TIM June 2019 1714-1723* 

#### Oscillators

High-Precision Time-of-Flight Determination Algorithm for Ultrasonic Flow Measurement. Sunol, F., +, TIM Aug. 2019 2724-2732

Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088

## Overhead line conductors

A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014* 

Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors. *Waters, D.H.*, +, *TIM Feb. 2019 595-605* 

# Overhead line mechanical characteristics

A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014* 

# Oxidation

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana*, M., +, TIM Dec. 2019 4853-4863

P

# **Painting**

Monocular Vision-Based Parameter Estimation for Mobile Robotic Painting. *Zhao, Q., +, TIM Oct. 2019 3589-3599* 

# Palmprint recognition

3-D Ultrasound Palmprint Recognition System Based on Principal Lines Extracted at Several Under Skin Depths. *Iula, A., +, TIM Dec. 2019 4653-4662* 

Person Recognition Using 3-D Palmprint Data Based on Full-Field Sinusoidal Fringe Projection. *Bai*, X., +, *TIM Sept. 2019 3287-3298* 

### Pantograph

Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. *Wang, H., +, TIM Oct. 2019 3536-3547* 

PAC Interaction Inspection Using Real-Time Contact Point Tracking. Shen, Y, +, TIM Oct. 2019 4051-4064

Pantograph-to-OHL Arc: Conducted Effects in DC Railway Supply System. Crotti, G., +, TIM Oct. 2019 3861-3870

Study on Characteristics Location of Pantograph–Catenary Contact Force Signal Based on Wavelet Transform. Zhang, J., +, TIM Feb. 2019 402-411

#### **Paper**

Kerr Electro-Optic Sensor for Electric Field in Large-Scale Oil–Pressboard Insulation Structure. *Gao, C.*, +, *TIM Oct. 2019 3626-3634* 

#### Paramagnetic resonance

Electron Paramagnetic Resonance Study on <sup>28</sup>Si Single Crystal for the Future Realization of the Kilogram. *Mizushima*, S., +, *TIM June 2019 1879-1886* 

#### Parameter estimation

- A Novel Calibration Method for Magnetometer Array in Nonuniform Background Field. Mu, Y., +, TIM Oct. 2019 3677-3685
- A Robust and Rapid Camera Calibration Method by One Captured Image. Zhang, J., +, TIM Oct. 2019 4112-4121
- A Stochastic Optimization Approach to Magnetometer Calibration With Gradient Estimates Using Simultaneous Perturbations. *Tahir, M.*, +, *TIM Oct. 2019 4152-4161*
- Analytical Formulation for Power, Energy, and Efficiency Measurement of Ultracapacitor Using Fractional Calculus. *Kumar, M.R.*, +, *TIM Dec. 2019* 4834-4844
- Distortion Characterization of Exponential Signal Reconstructed by Low-Chirp Signal. Carni, D.L., +, TIM April 2019 980-986
- Health Assessment Method for Electronic Components Subject to Condition Monitoring and Hard Failure. Zhao, S., +, TIM Jan. 2019 138-150
- Joint Compensation of Jitter Noise and Time-Shift Errors in Multichannel Sampling System. *Araghi*, H., +, TIM Oct. 2019 3932-3941
- Line Impedance Estimation Based on Synchrophasor Measurements for Power Distribution Systems. *Pegoraro, P.A.*, +, *TIM April 2019 1002-1013* Linearized Bregman Iterations for Automatic Optical Fiber Fault Analysis. *Lunglmayr, M.*, +, *TIM Oct. 2019 3699-3711*
- Models for Synchrophasor With Step Discontinuities in Magnitude and Phase: Estimation and Performance. *Martins*, *M.B.*, +, *TIM June 2019 2007-2014*
- Monocular Vision-Based Parameter Estimation for Mobile Robotic Painting. Zhao, Q., +, TIM Oct. 2019 3589-3599
- Performance Analysis of the PMD Camboard Picoflexx Time-of-Flight Camera for Markerless Motion Capture Applications. *Pasinetti*, S., +, *TIM Nov.* 2019 4456-4471
- Product-Specific Nonlinear Characterization and Instrument for Illumination Angle Measurement With Manufacturing Defects. *Liu*, G., +, TIM Sept. 2019 3299-3307
- TOA Estimation of Chirp Signal in Dense Multipath Environment for Low-Cost Acoustic Ranging. Zhang, L., +, TIM Feb. 2019 355-367
- Uncertainty Bounds of Transmission Line Parameters Estimated From Synchronized Measurements. Asprou, M., +, TIM Aug. 2019 2808-2818

### Partial discharge measurement

- A Novel PD Detection Technique for Use in GIS Based on a Combination of UHF and Optical Sensors. *Han, X.*, +, *TIM Aug. 2019 2890-2897*
- Application of Charge-Sensitive Preamplifier for the Calibration of Partial Discharge Calibrators Below 1 pC. *Havunen*, *J.*, +, *TIM June 2019 2034-2040*
- Design of a Distributed UHF Sensor Array System for PD Detection and Location in Substation. Hu, Y., +, TIM June 2019 1844-1851
- Effects of Mechanical Pressure on the Tangent Delta of MV Cable Joints. Ghaderi, A., +, TIM July 2019 2656-2658
- Partial Discharge Localization in Insulated Switchgears by Eigenfunction Expansion Method. D'Antona, G., +, TIM May 2019 1294-1301

### Partial discharges

- Detection of HV Winding Radial Deformation and PD in Power Transformer Using Stepped-Frequency Hyperboloid Method. *Tabarsa*, H., +, *TIM Aug.* 2019 2934-2942
- Multilevel PWM: A Tool to Explore Insulation PD Characteristics. Hammarstrom, T.J.A., TIM Oct. 2019 4075-4084
- Multiple Partial Discharge Source Localization in Power Cables Through Power Spectral Separation and Time-Domain Reflectometry. *Robles, G.*, +, *TIM Dec.* 2019 4703-4711

## Particle filtering (numerical methods)

- A Joint Filter Approach for Reliable Power System State Estimation. Yu, Y., +, TIM Jan. 2019 87-94
- A Novel Measurement Data Classification Algorithm Based on SVM for Tracking Closely Spaced Targets. Zhao, Z., +, TIM April 2019 1089-1100

- An Enhanced Mutated Particle Filter Technique for System State Estimation and Battery Life Prediction. *Ahwiadi*, M., +, TIM March 2019 923-935
- Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking. *Tian*, *Q*., +, *TIM Oct.* 2019 4028-4037
- Indoor Localization on Smartphones Using Built-In Sensors and Map Constraints. *Xia*, H., +, *TIM April* 2019 1189-1198

#### Particle size

Improving a Commodity Dust Sensor to Enable Particle Size Analysis. *Pedersini, F., TIM Jan. 2019 177-188* 

#### Particle size measurement

Improving a Commodity Dust Sensor to Enable Particle Size Analysis. *Pedersini, F., TIM Jan. 2019 177-188* 

# Particle swarm optimization

- Bee Swarm Detection Based on Comparison of Estimated Distributions Samples of Sound. Krzywoszyja, G., +, TIM Oct. 2019 3776-3784
- Multiple Partial Discharge Source Localization in Power Cables Through Power Spectral Separation and Time-Domain Reflectometry. *Robles, G.*, +, *TIM Dec. 2019 4703-4711*
- On-Line Measurement of Dynamic Tilt Angle by Compensating Gyroscope Drift Error. Shi, L., +, TIM Sept. 2019 3244-3252

#### Passive networks

Developing a High-Power Multilayer Ceramic Capacitor Qualification Test Setup for RF Subsystems. *Alqudsi*, A., +, *TIM Sept. 2019 3396-3404* 

#### Path planning

Effective Landmark Placement for Robot Indoor Localization With Position Uncertainty Constraints. *Magnago*, V., +, *TIM Nov.* 2019 4443-4455

#### Patient care

A Measurement System to Estimate the Pleural Pressure From the CVP for Respiratory System Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2469-2478* **Patient diagnosis** 

- A New Device Based on Interferometric Optical Detection Method for Label-Free Screening of C-Reactive Protein. *Maigler, M.V., +, TIM Sept.* 2019 3193-3199
- A Robust Wrist Pulse Acquisition System Based on Multisensor Collaboration and Signal Quality Assessment. *Jiang, Z.*, +, *TIM Dec. 2019 4807-4816*
- On the Suitability of Low-Cost Compact Instrumentation for Blood Impedance Measurements. *Addabbo*, T., +, TIM July 2019 2412-2424
- Performance Evaluation of a Time-Domain Microwave System for Medical Diagnostics. *Zeng, X.*, +, *TIM Aug. 2019 2880-2889*

## Patient monitoring

- A Capacitive-Coupled Noncontact Probe for the Measurement of Conductivity of Liquids. *Tejaswini*, K.K., +, TIM May 2019 1602-1610
- A Measurement System to Estimate the Pleural Pressure From the CVP for Respiratory System Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2469-2478*
- An Extended Kalman Filter for Fetal Heart Location Estimation During Doppler-Based Heart Rate Monitoring. *Hamelmann*, P., +, TIM Sept. 2019 3221-3231
- Contactless Monitoring of Pulse Rate and Eye Movement for Uveal Melanoma Patients Undergoing Radiation Therapy. *Lin, Y., +, TIM Feb. 2019* 474.482
- Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli*, A., +, *TIM July 2019 2433-2441*
- Motion-Artifact Reduction in Capacitive Heart-Rate Measurements by Adaptive Filtering. Xu, L., +, TIM Oct. 2019 4085-4093
- The Influence of Uncertainty Contributions on Deep Learning Architectures in Vision-Based Evaluation Systems. *Callari, G., +, TIM July 2019 2425-2432*
- Video-Based Heart Rate Measurement: Recent Advances and Future Prospects. Chen, X., +, TIM Oct. 2019 3600-3615

# Patient rehabilitation

- Design of a Novel Elastic Torque Sensor for Hand Injuries Rehabilitation Based on Bowden Cable. *Zhang, F.*, +, *TIM Sept. 2019 3184-3192*
- Finger Displacement Sensing: FEM Simulation and Model Prediction of a Three-Layer Electrode Design. *Hu*, *N.*, +, *TIM May 2019 1432-1440*

# Pattern classification

A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings. *Hong, K.*, +, *TIM April 2019 1221-1229* 

An Arc Fault Detection Method Based on Current Amplitude Spectrum and Sparse Representation. Qu, N., +, TIM Oct. 2019 3785-3792

An Enhanced Trace Ratio Linear Discriminant Analysis for Fault Diagnosis: An Illustrated Example Using HDD Data. *Yang, A.*, +, *TIM Dec. 2019* 4629-4639

CGAN-MBL for Reliability Assessment With Imbalanced Transmission Gear Data. Li, J., +, TIM Sept. 2019 3173-3183

Characterization of S<sub>1</sub> and S<sub>2</sub> Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, M., +, TIM Sept. 2019 3211-3220

Deep Nearest Class Mean Model for Incremental Odor Classification. Cheng, Y., +, TIM April 2019 952-962

Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V., +, TIM Aug. 2019 2691-2704* 

Tea Quality Prediction by Sparse Modeling of Electronic Tongue Signals. Saha, P., +, TIM Sept. 2019 3046-3053

#### Pattern clustering

An Approach of Single-Crystal Defect Detection Using X-Ray Orientation Instrument. Guan, S., +, TIM Oct. 2019 4122-4134

#### Pattern recognition

An Enhanced Trace Ratio Linear Discriminant Analysis for Fault Diagnosis: An Illustrated Example Using HDD Data. *Yang*, A., +, *TIM Dec. 2019* 4629-4639

#### Pedestrians

A Robust Pedestrian Dead Reckoning System Using Low-Cost Magnetic and Inertial Sensors. Shi, L., +, TIM Aug. 2019 2996-3003

Accurate Step Length Estimation for Pedestrian Dead Reckoning Localization Using Stacked Autoencoders. *Gu, F., +, TIM Aug. 2019 2705-2713* 

Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking. *Tian*, Q., +, *TIM Oct.* 2019 4028-4037

#### **Pendulums**

Torsional Balance for Simultaneous Evaluation of Thrust Force and Flow Velocity of Electrostatically Induced Ionic Wind. Lee, J.R., +, TIM Nov. 2019 4518-4525

## Peripheral interfaces

Characterization of PXI-Based Generators for Impedance Measurement Setups. *Miroslaw, M.*, +, *TIM June 2019 1806-1813* 

Design and Evaluation of a USB Isolator for Medical Instrumentation. Gonzalez-Briceno, G., +, TIM March 2019 797-806

### Permanent magnet motors

Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning. Kao, I., +, TIM Feb. 2019 310-324

Resolver-To-Digital Conversion Based on Acceleration-Compensated Angle Tracking Observer. Wang, F., +, TIM Oct. 2019 3494-3502

#### Permanent magnets

Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking. Dai, H., +, TIM Sept. 2019 3379-3386

#### Permittivity

A Novel Two-Peak Analysis for Dielectric Spectroscopy. *Buehler, M.G., TIM July 2019 2539-2544* 

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana*, M., +, TIM Dec. 2019 4853-4863

Measurement Capability of Scanning Microwave Microscopy: Measurement Sensitivity Versus Accuracy. *Horibe, M.*, +, *TIM June 2019 1774-1780* 

The ACE1 Electrical Impedance Tomography System for Thoracic Imaging. Mellenthin, M.M., +, TIM Sept. 2019 3137-3150

### Permittivity measurement

A Self-Gap-Correction Method for Accurate Permittivity Measurement Using the Hybrid Optimization Algorithm. *Xu*, *H*., +, *TIM June 2019 1781-1787* 

Accurate Technique for Electrical Permittivity Measurement of Biological Tissue Specimens at Low Frequencies. *Hesabgar, S.M.*, +, *TIM July 2019* 2479-2490

An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836

Broadband Permittivity Measurements up to 170-GHz Using Balanced-Type Circular-Disk Resonator Excited by 0.8-mm Coaxial Line. *Kato, Y., +, TIM June 2019 1796-1805* 

Concentration Measurement of Microliter-Volume Water-Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

Direct Image Reconstruction for Electrical Capacitance Tomography Using Shortcut D-Bar Method. *Zhao, J., +, TIM Feb. 2019 483-492* 

Partially Filled Substrate Integrated Waveguide-Based Microwave Technique for Broadband Dielectric Characterization. *Tiwari, N.K.*, +, *TIM Aug.* 2019 2907-2915

Towards Accurate and Wideband *In Vivo* Measurement of Skin Dielectric Properties. *Gao*, Y., +, *TIM Feb. 2019 512-524* 

### Perturbation techniques

A Stochastic Optimization Approach to Magnetometer Calibration With Gradient Estimates Using Simultaneous Perturbations. *Tahir, M.*, +, *TIM Oct. 2019 4152-4161* 

Nonlinearity of the NIST Calculable Capacitor. Wang, Y., +, TIM June 2019 1895-1900

## Perturbation theory

Amplitude Estimation and Source Separation for Harmonics Within Two Mixtures Based on a Min-Rank Criterion. *Yang, Y., +, TIM Dec. 2019* 4618-4628

#### pН

Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang, J.*, +, *TIM July 2019* 2387-2393

#### pH control

State Estimation of Slow-Rate Integrated Measurement Systems in the Presence of Parametric Uncertainties. Salehi, Y., +, TIM Oct. 2019 3983-3991

#### pH measurement

A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan*, S., +, TIM Aug. 2019 2871-2879

#### **Phantoms**

Pulse Pileup Correction of Signals From a Pyroelectric Sensor for Phase-Insensitive Ultrasound Computed Tomography. Baker, C., +, TIM Oct. 2019 3920-3931

The ACE1 Electrical Impedance Tomography System for Thoracic Imaging. Mellenthin, M.M., +, TIM Sept. 2019 3137-3150

#### Phase estimation

An Improved Sine Wave Histogram Test Method for ADC Characterization. Palfi, V., TIM Oct. 2019 3446-3455

# Phase locked loops

FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao, J.*, +, *TIM July 2019 2374-2386* 

Resolver-To-Digital Conversion Based on Acceleration-Compensated Angle Tracking Observer. Wang, F., +, TIM Oct. 2019 3494-3502

Simultaneous Estimation of Moving-Vibration Parameters by Sliding Goertzel Algorithm in PLL Technique. Singh, K.M., TIM Feb. 2019 334-343

## Phase measurement

A New Phase Difference Measurement System With Differential AC/Single-Ended DC Switching for One TVC. *Yamada*, *T.*, +, *TIM June 2019* 2021-2026

A Robust Pedestrian Dead Reckoning System Using Low-Cost Magnetic and Inertial Sensors. Shi, L., +, TIM Aug. 2019 2996-3003

An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836

Comparison of Two Methods for Phase Angle Measurement. *Velychko, O.*, +, *TIM June 2019 1740-1747* 

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. Urbonas, J., +, TIM Aug. 2019 2971-2978

Impact of Coreless Current Transformer Position on Current Measurement. Ma, X., +, TIM Oct. 2019 3801-3809

Josephson Arbitrary Waveform Synthesizer as a Reference Standard for the Measurement of the Phase of Harmonics in Distorted Waveforms. *Georga-kopoulos*, D., +, TIM June 2019 1927-1934

Models for Synchrophasor With Step Discontinuities in Magnitude and Phase: Estimation and Performance. *Martins, M.B.*, +, *TIM June 2019 2007-2014* 

Novel Broadband Calibration Method of Current Shunts Based on VNA. Ouameur, M., +, TIM March 2019 854-863

Null Technique for Precision RF Phase Shift Measurements. Widarta, A., TIM June 2019 1840-1843

Realization of Absolute Phase and AC Resistance of Current Shunts by Ratio Measurements. *Bergsten, T., +, TIM June 2019 2041-2046* 

Self-Calibration and Verification of Phase Angle Errors of Two Voltage Dividers at High Frequencies. Shi, Z., +, TIM June 2019 2053-2059

### Phase meters

Comparison of Two Methods for Phase Angle Measurement. Velychko, O., +, TIM June 2019 1740-1747

#### Phase modulation

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

#### Phase noise

Evaluation of Fiber Noise Induced in Ultrastable Environments. *Wada*, *M*., +, *TIM June 2019* 2246-2252

#### Phase shift keying

A Robust Modulation Classification Method for PSK Signals Using Random Graphs. *Eldemerdash, Y.A.*, +, *TIM Feb. 2019 642-644* 

Parameter Measurement of M-Ary PSK Signals With Finite Rate of Innovation. Fu, N., +, TIM May 2019 1271-1283

#### Phase shifters

Null Technique for Precision RF Phase Shift Measurements. Widarta, A., TIM June 2019 1840-1843

#### Phasor measurement

A New Hybrid State Estimation Considering Different Accuracy Levels of PMU and SCADA Measurements. *Kabiri, M.*, +, *TIM Sept. 2019 3078-3089* 

An Interharmonic Phasor and Frequency Estimator for Subsynchronous Oscillation Identification and Monitoring. *Chen, L.*, +, *TIM June 2019 1714-1723* 

Compensation of Nonlinearity of Voltage and Current Instrument Transformers. Cataliotti, A., +, TIM May 2019 1322-1332

Compensation of Systematic Measurement Errors in a PMU-Based Monitoring System for Electric Distribution Grids. *Pegoraro, P.A.*, +, *TIM Oct.* 2019 3871-3882

Dynamic Harmonic Synchrophasor Estimator Based on Sinc Interpolation Functions. Chen, L., +, TIM Sept. 2019 3054-3065

Line Impedance Estimation Based on Synchrophasor Measurements for Power Distribution Systems. Pegoraro, P.A., +, TIM April 2019 1002-1013

Models for Synchrophasor With Step Discontinuities in Magnitude and Phase: Estimation and Performance. *Martins*, *M.B.*, +, *TIM June 2019 2007-2014* 

Optimum Placement of Phasor Measurement Units in Power Systems. Sun, L., +, TIM Feb. 2019 421-429

PMU-Based ROCOF Measurements: Uncertainty Limits and Metrological Significance in Power System Applications. *Frigo, G.*, +, *TIM Oct. 2019* 3810-3822

Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling. *Kitzig, J.*, +, *TIM April 2019 1014-1025* 

Reduced Leakage Synchrophasor Estimation: Hilbert Transform Plus Interpolated DFT. Frigo, G., +, TIM Oct. 2019 3468-3483

Space Vector Taylor–Fourier Models for Synchrophasor, Frequency, and ROCOF Measurements in Three-Phase Systems. *Castello, P.*, +, *TIM May* 2019 1313-1321

Uncertainty Bounds of Transmission Line Parameters Estimated From Synchronized Measurements. *Asprou, M.*, +, *TIM Aug. 2019 2808-2818* 

## Phasor measurement units

Guest Editors' Foreword Special Section on the 2018 IEEE International Workshop on Applied Measurements for Power Systems (AMPS 2018) Bologna, Italy, September 26–28, 2018. Ferrero, R., +, TIM Oct. 2019 3799-3800

## Photoacoustic effects

Fiber Optic Sensors Based on Photoacoustic Effect for Rebar Corrosion Measurement. Du, C., +, TIM Nov. 2019 4559-4565

#### **Photodetectors**

On the Design of Force Sensors Based on Frustrated Total Internal Reflection. Lavatelli, A., +, TIM Oct. 2019 4065-4074

Optical Transition-Edge Sensors: Dependence of System Detection Efficiency on Wavelength. *Hattori, K., +, TIM June 2019 2253-2259* 

Wearable Inverse Light-Emitting Diode Sensor for Measuring Light Intensity at Specific Wavelengths in Light Therapy. *Tsai*, H., +, *TIM May 2019* 1561-1574

#### **Photodiodes**

An Accurate Visible Light Positioning System Using Regenerated Fingerprint Database Based on Calibrated Propagation Model. *Alam, F.*, +, *TIM Aug. 2019 2714-2723* 

Effects of Aperture Diameter on Image Blur of CMOS Image Sensor With Pixel Apertures. *Choi, B., +, TIM May 2019 1382-1388* 

### Photodissociation

Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants. *Constantin, F.L., TIM June 2019 2151-2159* 

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Wearable Inverse Light-Emitting Diode Sensor for Measuring Light Intensity at Specific Wavelengths in Light Therapy. *Tsai*, H., +, *TIM May 2019* 1561-1574

#### Photometry

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#### **Photomultipliers**

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### Photon counting

Linearized Bregman Iterations for Automatic Optical Fiber Fault Analysis. *Lunglmayr, M.*, +, *TIM Oct. 2019 3699-3711* 

### Photoplethysmography

A Robust Pulse Onset and Peak Detection Method for Automated PPG Signal Analysis System. *Vadrevu*, S., +, *TIM March* 2019 807-817

Contactless Monitoring of Pulse Rate and Eye Movement for Uveal Melanoma Patients Undergoing Radiation Therapy. *Lin*, *Y*., +, *TIM Feb.* 2019 474-482

Video-Based Heart Rate Measurement: Recent Advances and Future Prospects. Chen, X., +, TIM Oct. 2019 3600-3615

# Photovoltaic cells

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## Photovoltaic power systems

Moving Photovoltaic Installations: Impacts of the Sampling Rate on Maximum Power Point Tracking Algorithms. Schuss, C., +, TIM May 2019

## Physiological models

Gait Nonlinear Patterns Related to Parkinson's Disease and Age. *Lahmiri*, *S.*, *TIM July 2019 2545-2551* 

## Physiology

Measuring the Local and Global Variabilities in Body Sway by Nonlinear Poincaré Technology. *Zhang, S.*, +, *TIM Dec. 2019 4817-4824* 

#### PI control

Novel Complex-Valued Stator Current-Based MRAS Estimators With Different Adaptation Mechanisms. *Zerdali, E., +, TIM Oct. 2019 3793-3795* 

## Piezoelectric devices

Thermal Force Uncertainty of Piezoelectric Dynamometer. Zhang, J., +, TIM

Dec. 2019 4723-4735

#### Piezoelectric materials

A Buffered Single-Supply Charge Amplifier for High-Impedance Piezoelectric Sensors. *Giannelli*, P., +, TIM Feb. 2019 368-376

## Piezoelectric transducers

A Buffered Single-Supply Charge Amplifier for High-Impedance Piezoelectric Sensors. *Giannelli*, P., +, TIM Feb. 2019 368-376

A Low-Threshold Bistable Device for Energy Scavenging From Wideband Mechanical Vibrations. *Ando, B.*, +, *TIM Jan. 2019 280-290* 

Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. *Das, S., +, TIM Sept. 2019 3308-3320* 

#### Pipe flow

A New Contactless Bubble/Slug Velocity Measurement Method of Gas— Liquid Two-Phase Flow in Small Channels. *Huang, J.*, +, *TIM Sept. 2019* 3253-3267

IR Transceiver Irradiation Characteristics on Bubble/Slug Flow Regimes in Conventional and Minichannels. Mithran, N., +, TIM Jan. 2019 240-249

Measurement of Oil-Water Interface Characteristics in Horizontal Pipe Using a Conductance Parallel-Wire Array Probe. *Zhai*, *L.*, +, *TIM Sept.* 2019 3232-3243

Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061

The Effect of Internal Pipe Wall Roughness on the Accuracy of Clamp-On Ultrasonic Flowmeters. Gu, X., +, TIM Jan. 2019 65-72

#### **Pipelines**

Nondestructive Testing of Nonmetallic Pipelines Using Microwave Reflectometry on an In-Line Inspection Robot. *Carrigan*, *T.D.*, +, *TIM Feb. 2019* 586-594

#### **Pipes**

Nondestructive Evaluation of Microwave-Penetrable Pipes by Synthetic Aperture Imaging Enhanced by Full-Wave Field Propagation Model. *Laviada*, *J.*, +, *TIM April 2019 1112-1119* 

Nondestructive Testing of Nonmetallic Pipelines Using Microwave Reflectometry on an In-Line Inspection Robot. *Carrigan, T.D.*, +, *TIM Feb. 2019* 586-594

The Effect of Internal Pipe Wall Roughness on the Accuracy of Clamp-On Ultrasonic Flowmeters. Gu, X., +, TIM Jan. 2019 65-72

#### Pistons

Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network. *Jin, Y., +, TIM April 2019 1026-1034* 

#### Plasma production

Developing a High-Power Multilayer Ceramic Capacitor Qualification Test Setup for RF Subsystems. *Alqudsi*, A., +, *TIM Sept. 2019 3396-3404* 

# **Plastics**

A Novel Sensing Methodology to Detect Furfural in Water, Exploiting MIPs, and Inkjet-Printed Optical Waveguides. *Cennamo*, N., +, *TIM May 2019 1582-1589* 

Wideband Dielectric Characterization of 3-D Printable Triethylene Glycol Dimethacrylate Ester Plastic. *Sharma, K.*, +, *TIM Nov. 2019 4419-4426* 

#### Plates (structures)

An Enhanced Time-Reversal Imaging Algorithm-Driven Sparse Linear Array for Progressive and Quantitative Monitoring of Cracks. *Wang*, *Q*., +, *TIM Oct.* 2019 3433-3445

Improved-Sensitivity Resonant Electric-Field Probes Based on Planar Spiral Stripline and Rectangular Plate Structure. Wang, J., +, TIM March 2019 882-894

Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks. Feng, B., +, TIM May 2019 1252-1260

#### Platinum

A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902

Spincaloritronic Measurements: A Round Robin Comparison of the Longitudinal Spin Seebeck Effect. Sola, A., +, TIM June 2019 1765-1773

### **Pneumodynamics**

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A Measurement System to Estimate the Pleural Pressure From the CVP for Respiratory System Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2469-2478* 

### Pockels effect

Measurement of Distorted Power-Frequency Electric Field With Integrated Optical Sensor. *Li*, *Z*., +, *TIM April 2019 1132-1139* 

### **Polarimeters**

Characterization of the Vacuum Birefringence Polarimeter at BMV: Dynamical Cavity Mirror Birefringence. *Hartman, M.T.*, +, *TIM June 2019 2268-2273* 

#### **Polarimetry**

Characterization of the Vacuum Birefringence Polarimeter at BMV: Dynamical Cavity Mirror Birefringence. *Hartman, M.T.*, +, *TIM June 2019 2268-*

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

#### Poles and zeros

Simultaneous Estimation of Moving-Vibration Parameters by Sliding Goertzel Algorithm in PLL Technique. Singh, K.M., TIM Feb. 2019 334-343

Wiener-Hammerstein System Identification: A Fast Approach Through Spearman Correlation. Shaikh, M.A.H., +, TIM May 2019 1628-1636

#### Polymer films

PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. *Chakraborty*, M., +, *TIM Jan. 2019 189-196* 

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

#### **Polymers**

A Buffered Single-Supply Charge Amplifier for High-Impedance Piezoelectric Sensors. *Giannelli*, P., +, TIM Feb. 2019 368-376

Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang, J.*, +, *TIM July 2019* 2387-2393

#### **Polynomials**

Behavior Modeling of the Amplifier Nonlinearity With the AC Josephson Voltage Standard. Zhou, K., +, TIM June 2019 1990-1995

Overcoming Frequency Response Measurements of Voltage Transformers: An Approach Based on Quasi-Sinusoidal Volterra Models. *Faifer, M.*, +, *TIM Aug. 2019 2800-2807* 

PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. *Chakraborty*, M., +, TIM Jan. 2019 189-196

Radiometric Calibration of Digital Counts of Infrared Thermal Cameras. Gonzalez-Chavez, O., +, TIM Nov. 2019 4387-4399

Vision-Based Measurement of Dust Concentration by Image Transmission. Li, G., +, TIM Oct. 2019 3942-3949

### Porcelain insulators

Detecting Defects in Porcelain Postinsulator Coated With Room Temperature Vulcanized Silicone Rubber by Pulsed Thermography. *Liu*, *L.*, +, *TIM Jan. 2019 225-233* 

### Portable instruments

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717* 

### Pose estimation

A Novel Global Localization Approach Based on Structural Unit Encoding and Multiple Hypothesis Tracking. *Gao*, *H*., +, *TIM Nov.* 2019 4427-4442

A Thermal Infrared Face Database With Facial Landmarks and Emotion Labels. *Kopaczka, M.*, +, *TIM May 2019 1389-1401* 

#### **Position control**

Calibration and Characterization of a Magnetic Positioning System Using a Robotic Arm. Santoni, F., +, TIM May 2019 1494-1502

Effective Landmark Placement for Robot Indoor Localization With Position Uncertainty Constraints. *Magnago*, V., +, *TIM Nov.* 2019 4443-4455

Informational Framework for Minimalistic Visual Odometry on Outdoor Robot. *Al Hage, J.*, +, *TIM Aug. 2019 2988-2995* 

Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. Zhao, J., +, TIM Sept. 2019 3268-3277

Resolver-To-Digital Conversion Based on Acceleration-Compensated Angle Tracking Observer. Wang, F., +, TIM Oct. 2019 3494-3502

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao, X.*, +, *TIM Nov. 2019 4285-4299* 

#### Position measurement

A Linear Direct-Digital Converter for Sinusoidal Encoders. *Bhaskarrao*, N.K., +, TIM July 2019 2570-2578

An Automated System for Position Monitoring and Correction of Chord-Based Rail Corrugation Measuring Points. Chen, L., +, TIM Jan. 2019 250-260

- Electromagnetic Tracking Using Modular, Tiled Field Generators. *Jaeger, H.A.*, +, *TIM Dec. 2019 4845-4852*
- High-Accuracy Localization and Calibration for 5-DoF Indoor Magnetic Positioning Systems. *Hehn, M., +, TIM Oct. 2019 4135-4145*
- Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking. *Tian*, Q., +, *TIM Oct.* 2019 4028-4037
- In-Motion Coarse Alignment Based on the Vector Observation for SINS.
  Zhang, T., +, TIM Oct. 2019 3740-3750
- INS/CNS Integrated Navigation Based on Corrected Infrared Earth Measurement. Gou, B., +, TIM Sept. 2019 3358-3366
- Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. Das, S., +, TIM Sept. 2019 3308-3320
- Precision Position Measurement of Linear Motors Mover Based on Temporal Image Correlation. Zhao, J., +, TIM Sept. 2019 3268-3277
- Synchronous Adaptive Resolver-to-Digital Converter for FPGA-Based High-Performance Control Loops. *Sabatini, V.*, +, *TIM Oct. 2019 3972-3982*

### Position sensitive particle detectors

The Focal-Plane Detector Package on the TUNL Split-Pole Spectrograph. Marshall, C., +, TIM Feb. 2019 533-546

#### Positive ions

Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants. *Constantin, F.L., TIM June 2019 2151-2159* 

#### Positron emission tomography

- An Advanced 100-Channel Readout System for Nuclear Imaging. *Zhao, Z.*, +, *TIM Sept. 2019 3200-3210*
- Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. *Yin, M.*, +, *TIM Jan.* 2019 49-64
- Multimodal Sensor Medical Image Fusion Based on Local Difference in Non-Subsampled Domain. Kong, W., +, TIM April 2019 938-951

#### **Potential transformers**

- A Fundamental Step-Up Method for Standard Voltage Transformers Based on an Active Capacitive High-Voltage Divider. *Mohns, E., +, TIM June* 2019 2121-2128
- Compensation of Nonlinearity of Voltage and Current Instrument Transformers. Cataliotti, A., +, TIM May 2019 1322-1332
- Harmonic Distortion Compensation in Voltage Transformers for Improved Power Quality Measurements. Faifer, M., +, TIM Oct. 2019 3823-3830
- Overcoming Frequency Response Measurements of Voltage Transformers: An Approach Based on Quasi-Sinusoidal Volterra Models. *Faifer, M.*, +, *TIM Aug. 2019 2800-2807*

#### Powders

Improving a Commodity Dust Sensor to Enable Particle Size Analysis. Pedersini, F., TIM Jan. 2019 177-188

## Power amplifiers

A Low-Cost Generator for Testing and Calibrating Current Transformers. Cristaldi, L., +, TIM Aug. 2019 2792-2799

## Power cable insulation

- Effects of Mechanical Pressure on the Tangent Delta of MV Cable Joints. Ghaderi, A., +, TIM July 2019 2656-2658
- Effects of Temperature on MV Cable Joints Tan Delta Measurements. Ghaderi, A., +, TIM Oct. 2019 3892-3898

### Power cables

- Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019* 215-224
- Multiple Partial Discharge Source Localization in Power Cables Through Power Spectral Separation and Time-Domain Reflectometry. *Robles, G.*, +, *TIM Dec. 2019 4703-4711*

# Power capacitors

Determination of Voltage Dependence in High-Voltage Standard Capacitors. Slomovitz, D., +, TIM June 2019 2136-2143

#### Power combiners

Measurement Method of Amplitude Ratios and Phase Differences Based on Power Detection Among Multiple Ports. *Choi, U.*, +, *TIM Dec. 2019* 4615-4617

#### Power consumption

Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. *Mayer, P., +, TIM July 2019 2346-2355* 

### Power distribution control

Interval State Estimation for Low-Voltage Distribution Systems Based on Smart Meter Data. *Huang*, M., +, *TIM Sept. 2019 3090-3099* 

#### Power distribution lines

Effects of Temperature on MV Cable Joints Tan Delta Measurements. *Ghaderi*, A., +, TIM Oct. 2019 3892-3898

### Power distribution reliability

Effects of Temperature on MV Cable Joints Tan Delta Measurements. *Ghaderi, A.*, +, *TIM Oct. 2019 3892-3898* 

## Power dividers

Design and Implementation of a High-Sensitivity and Compact-Size IFM Receiver. *Rahimpour, H.*, +, *TIM July 2019 2602-2609* 

## Power engineering computing

- A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014*
- A New Method With Hilbert Transform and Slip-SVD-Based Noise-Suppression Algorithm for Noisy Power Quality Monitoring. *Wang, Y., +, TIM April 2019 987-1001*
- A Novel Approach for the Error Correction of CT in the Presence of Harmonic Distortion. *Ballal, M.S.*, +, *TIM Oct. 2019 4015-4027*
- A Novel Technique for Fundamental and Harmonic Parameter Estimation Using Nonergodic S-Transform. Yi, J., +, TIM Oct. 2019 3503-3513
- A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings. *Hong, K.*, +, *TIM April 2019 1221-1229*
- An Arc Fault Detection Method Based on Current Amplitude Spectrum and Sparse Representation. Qu, N., +, TIM Oct. 2019 3785-3792
- An Improved Load Flow Method for MV Networks Based on LV Load Measurements and Estimations. *Cataliotti*, A., +, *TIM Feb. 2019 430-438*
- Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019* 215-224
- Decentralized Load Estimation for Distribution Systems Using Artificial Neural Networks. *Chen, Y., +, TIM May 2019 1333-1342*
- Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure. Pau, M., +, TIM Nov. 2019 4300-4312
- The Core for High-Precision Stochastic Smart Grid Meter Based on Low-Resolution Flash ADC. *Urekar, M.*, +, *TIM June 2019 1705-1713*
- Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM. Wang, T., +, TIM March 2019 818-828

### Power factor

Comparison of Reference Setups for Calibrating Power Transformer Loss Measurement Systems. *Rietveld, G.*, +, *TIM June 2019 1732-1739* 

# Power generation

Power Calibration of Electrosurgical Units. Arencibia, R.V., +, TIM Dec. 2019 4798-4806

# Power grids

- A Computation and Metering Method for Harmonic Emissions of Individual Consumers. *Dirik*, H., +, *TIM Feb. 2019 412-420*
- A Testing Framework for the Monitoring and Performance Analysis of Distributed Energy Systems. *Rinaldi, S., +, TIM Oct. 2019 3831-3840*
- Behavioral Representation of a Bridge Rectifier Using Simplified Volterra Models. Faifer, M., +, TIM May 2019 1611-1618
- Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure. Pau, M., +, TIM Nov. 2019 4300-4312
- Dynamic Frequency and Amplitude Estimation for Three-Phase Unbalanced Power Systems Using the Unscented Kalman Filter. Wu, C., +, TIM Sept. 2019 3387-3395
- Field Measurement of Frequency and ROCOF in the Presence of Phase Steps. Wright, P.S., +, TIM June 2019 1688-1695

Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling. *Kitzig, J.*, +, *TIM April 2019 1014-1025* 

#### Power harmonic filters

Dynamic Frequency and Amplitude Estimation for Three-Phase Unbalanced Power Systems Using the Unscented Kalman Filter. Wu, C., +, TIM Sept. 2019 3387-3395

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Improved-Sensitivity Resonant Electric-Field Probes Based on Planar Spiral Stripline and Rectangular Plate Structure. Wang, J., +, TIM March 2019 882-894

#### Power measurement

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- A Sampling Wattmeter With Extended Frequency Range. Waltrip, B., +, TIM June 2019 2187-2194
- An Improved Load Flow Method for MV Networks Based on LV Load Measurements and Estimations. *Cataliotti*, A., +, TIM Feb. 2019 430-438
- Analytical Formulation for Power, Energy, and Efficiency Measurement of Ultracapacitor Using Fractional Calculus. *Kumar, M.R.*, +, *TIM Dec. 2019* 4834-4844
- Characterization of a Type-N Coaxial Microcalorimeter for Use as Microwave Power Standard at CENAM. *Botello-Perez, M.*, +, *TIM Feb. 2019* 558-565
- Comparison of Two Methods for Phase Angle Measurement. Velychko, O., +, TIM June 2019 1740-1747
- Guest Editors' Foreword Special Section on the 2018 IEEE International Workshop on Applied Measurements for Power Systems (AMPS 2018) Bologna, Italy, September 26–28, 2018. Ferrero, R., +, TIM Oct. 2019 3799-3800
- Harmonic Power Standard of VTT MIKES. Lehtonen, T.A., TIM June 2019 2047-2052
- Harmonics Effects on Microwave Power Measurement Using Diode Sensors. Drazil, K., +, TIM June 2019 1852-1859
- Identification of RF&MW Microcalorimeter Weak Points by Means of Uncertainty Analysis. *Oberto, L., TIM June 2019 1948-1954*
- Impact of Current and Power Measurements on Distribution System State Estimation Uncertainty. *Pau, M.*, +, *TIM Oct. 2019 3992-4002*
- NIST-Traceable Microwave Power Measurement in a Waveguide Calorimeter With Correlated Uncertainties. Gu, D., +, TIM June 2019 2280-2287
- Output Power and Gain Monitoring in RF CMOS Class A Power Amplifiers by Thermal Imaging. *Perpina, X.*, +, *TIM Aug. 2019 2861-2870*
- Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717*

## Power meters

Radiation-Pressure-Enabled Traceable Laser Sources at CW Powers up to 50 kW. Williams, P.A., +, TIM June 2019 1833-1839

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- A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014*
- Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors. Waters, D.H., +, TIM Feb. 2019 595-605
- Pantograph-to-OHL Arc: Conducted Effects in DC Railway Supply System. Crotti, G., +, TIM Oct. 2019 3861-3870

# Power quality

Guest Editors' Foreword Special Section on the 2018 IEEE International Workshop on Applied Measurements for Power Systems (AMPS 2018) Bologna, Italy, September 26–28, 2018. Ferrero, R., +, TIM Oct. 2019 3799-3800

### Power supply circuits

Externally Referenced Current Source With Stability Down to 1 nA/A at 50 mA. Fan, I., +, TIM June 2019 2129-2135

## Power supply quality

A New Method With Hilbert Transform and Slip-SVD-Based Noise-Suppression Algorithm for Noisy Power Quality Monitoring. *Wang, Y., +, TIM April 2019 987-1001* 

- Comparison of Two Methods for Phase Angle Measurement. *Velychko, O.*, +, *TIM June 2019 1740-1747*
- Harmonic Distortion Compensation in Voltage Transformers for Improved Power Quality Measurements. *Faifer, M., +, TIM Oct. 2019 3823-3830*
- Identification and Estimation of Harmonic Sources Based on Compressive Sensing. Carta, D., +, TIM Jan. 2019 95-104
- Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling. *Kitzig, J.*, +, *TIM April 2019 1014-1025*
- Proposal of a Desynchronized Processing Technique for Assessing High-Frequency Distortion in Power Systems. *Collin, A.J.*, +, *TIM Oct. 2019 3883-3891*
- Uncertainty Analysis in Time Distribution Mechanisms for OMS Smart Meters: The Last-Mile Time Synchronization Issue. *Rinaldi, S.*, +, *TIM March* 2019 693-703

#### Power system control

- A Joint Filter Approach for Reliable Power System State Estimation. Yu, Y., +, TIM Jan. 2019 87-94
- A New Hybrid State Estimation Considering Different Accuracy Levels of PMU and SCADA Measurements. *Kabiri, M., +, TIM Sept. 2019 3078-3080*
- Uncertainty Bounds of Transmission Line Parameters Estimated From Synchronized Measurements. *Asprou, M.*, +, *TIM Aug. 2019 2808-2818*

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- Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019* 215-224
- Field Measurement of Frequency and ROCOF in the Presence of Phase Steps. Wright, P.S., +, TIM June 2019 1688-1695
- Low-Cost Online Contact Resistance Measurement of Power Connectors to Ease Predictive Maintenance. *Kadechkar, A., +, TIM Dec. 2019 4825-4833*

### Power system harmonics

- A Computation and Metering Method for Harmonic Emissions of Individual Consumers. *Dirik, H., +, TIM Feb. 2019 412-420*
- A New Method With Hilbert Transform and Slip-SVD-Based Noise-Suppression Algorithm for Noisy Power Quality Monitoring. *Wang, Y., +, TIM April* 2019 987-1001
- A Novel Technique for Fundamental and Harmonic Parameter Estimation Using Nonergodic S-Transform. Yi, J., +, TIM Oct. 2019 3503-3513
- An Interharmonic Phasor and Frequency Estimator for Subsynchronous Oscillation Identification and Monitoring. *Chen, L.*, +, *TIM June 2019 1714-1723*
- Compensation of Nonlinearity of Voltage and Current Instrument Transformers. Cataliotti, A., +, TIM May 2019 1322-1332
- Dynamic Frequency and Amplitude Estimation for Three-Phase Unbalanced Power Systems Using the Unscented Kalman Filter. Wu, C., +, TIM Sept. 2019 3387-3395
- Dynamic Harmonic Synchrophasor Estimator Based on Sinc Interpolation Functions. *Chen, L.*, +, *TIM Sept. 2019 3054-3065*
- Estimation of the Power Quantities Below One Signal Period Using DFT Coefficients. Stremfelj, J., +, TIM June 2019 1696-1704
- Harmonic Distortion Compensation in Voltage Transformers for Improved Power Quality Measurements. Faifer, M., +, TIM Oct. 2019 3823-3830
- Identification and Estimation of Harmonic Sources Based on Compressive Sensing. Carta, D., +, TIM Jan. 2019 95-104
- Overcoming Frequency Response Measurements of Voltage Transformers: An Approach Based on Quasi-Sinusoidal Volterra Models. *Faifer, M.*, +, *TIM Aug.* 2019 2800-2807
- Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling. *Kitzig, J.*, +, *TIM April 2019 1014-1025*

# Power system identification

An Interharmonic Phasor and Frequency Estimator for Subsynchronous Oscillation Identification and Monitoring. *Chen, L.*, +, *TIM June 2019 1714-1723* 

# Power system management

Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure. Pau, M., +, TIM Nov. 2019 4300-4312

#### Power system measurement

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- Compensation of Systematic Measurement Errors in a PMU-Based Monitoring System for Electric Distribution Grids. *Pegoraro, P.A.*, +, *TIM Oct.* 2019 3871-3882
- Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure. Pau, M., +, TIM Nov. 2019 4300-4312
- Detection of HV Winding Radial Deformation and PD in Power Transformer Using Stepped-Frequency Hyperboloid Method. *Tabarsa*, H., +, *TIM Aug.* 2019 2934-2942
- Effects of Temperature on MV Cable Joints Tan Delta Measurements. Ghaderi, A., +, TIM Oct. 2019 3892-3898
- Field Measurement of Frequency and ROCOF in the Presence of Phase Steps. Wright, P.S., +, TIM June 2019 1688-1695
- Harmonic Distortion Compensation in Voltage Transformers for Improved Power Quality Measurements. Faifer, M., +, TIM Oct. 2019 3823-3830
- Identification and Estimation of Harmonic Sources Based on Compressive Sensing. Carta, D., +, TIM Jan. 2019 95-104
- Impact of Current and Power Measurements on Distribution System State Estimation Uncertainty. *Pau, M.*, +, *TIM Oct. 2019 3992-4002*
- Interval State Estimation for Low-Voltage Distribution Systems Based on Smart Meter Data. *Huang, M.*, +, *TIM Sept. 2019 3090-3099*
- Proposal of a Desynchronized Processing Technique for Assessing High-Frequency Distortion in Power Systems. *Collin, A.J.*, +, *TIM Oct. 2019 3883-3891*

#### Power system reliability

- Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019* 215-224
- Field Measurement of Frequency and ROCOF in the Presence of Phase Steps. Wright, P.S., +, TIM June 2019 1688-1695

### Power system restoration

PMU-Based ROCOF Measurements: Uncertainty Limits and Metrological Significance in Power System Applications. *Frigo, G.*, +, *TIM Oct. 2019* 3810-3822

### Power system state estimation

- A Joint Filter Approach for Reliable Power System State Estimation. Yu, Y., +, TIM Jan. 2019 87-94
- A New Hybrid State Estimation Considering Different Accuracy Levels of PMU and SCADA Measurements. *Kabiri, M., +, TIM Sept. 2019 3078-3089*
- Decentralized Load Estimation for Distribution Systems Using Artificial Neural Networks. Chen, Y., +, TIM May 2019 1333-1342
- Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure. Pau, M., +, TIM Nov. 2019 4300-4312
- Impact of Current and Power Measurements on Distribution System State Estimation Uncertainty. *Pau, M.*, +, *TIM Oct. 2019 3992-4002*
- Interval State Estimation for Low-Voltage Distribution Systems Based on Smart Meter Data. *Huang, M.*, +, *TIM Sept. 2019 3090-3099*
- Line Impedance Estimation Based on Synchrophasor Measurements for Power Distribution Systems. *Pegoraro, P.A.*, +, *TIM April 2019 1002-1013* Optimum Placement of Phasor Measurement Units in Power Systems. *Sun, L.*, +, *TIM Feb. 2019 421-429*

### Power system transients

Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling. *Kitzig, J.*, +, *TIM April 2019 1014-1025* 

## Power systems

Guest Editors' Foreword Special Section on the 2018 IEEE International Workshop on Applied Measurements for Power Systems (AMPS 2018) Bologna, Italy, September 26–28, 2018. Ferrero, R., +, TIM Oct. 2019 3799-3800

## Power systems measurements

Compact Distributed Digitizers With Metrological Precision. *Houtzager, E.*, +, *TIM June 2019 1653-1658* 

#### Power transformer insulation

- Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana*, M., +, *TIM Dec.* 2019 4853-4863
- Kerr Electro-Optic Sensor for Electric Field in Large-Scale Oil–Pressboard Insulation Structure. *Gao, C.*, +, *TIM Oct. 2019 3626-3634*

#### Power transformers

- A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings. Hong, K., +, TIM April 2019 1221-1229
- Application of FRA to Improve the Design and Maintenance of Wireless Power Transfer Systems. *Kim, D.*, +, *TIM Nov. 2019 4313-4325*
- Comparison of Reference Setups for Calibrating Power Transformer Loss Measurement Systems. *Rietveld, G.*, +, *TIM June 2019 1732-1739*
- Detection of HV Winding Radial Deformation and PD in Power Transformer Using Stepped-Frequency Hyperboloid Method. *Tabarsa*, H., +, TIM Aug. 2019 2934-2942
- Detection of Winding Faults Based on a Characterization of the Nonlinear Dynamics of Transformers. *Zheng, J., +, TIM Jan. 2019 206-214*
- Improved-Sensitivity Resonant Electric-Field Probes Based on Planar Spiral Stripline and Rectangular Plate Structure. Wang, J., +, TIM March 2019 882-894
- Mechanical Fault Diagnostics of Power Transformer On-Load Tap Changers Using Dynamic Time Warping. *Yang*, R., +, *TIM Sept. 2019 3119-3127*

#### Power transmission (mechanical)

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S.*, +, *TIM July 2019 2335-2345* 

### Power transmission lines

- A Measurement Technology of Space Distance Among Transmission Bundle Conductors Based on Image Sensors. *Huang, X.*, +, *TIM Oct. 2019 4003-4014*
- Uncertainty Bounds of Transmission Line Parameters Estimated From Synchronized Measurements. *Asprou, M.*, +, *TIM Aug. 2019 2808-2818*

## Power transmission reliability

Pantograph-to-OHL Arc: Conducted Effects in DC Railway Supply System. Crotti, G., +, TIM Oct. 2019 3861-3870

## Preamplifiers

Application of Charge-Sensitive Preamplifier for the Calibration of Partial Discharge Calibrators Below 1 pC. *Havunen*, *J.*, +, *TIM June 2019 2034-2040* 

### **Prediction methods**

TDR Prediction Method for PIM Distortion in Loose Contact Coaxial Connectors. Yang, H., +, TIM Dec. 2019 4689-4693

### Pressure measurement

- Fiber Bragg Grating-Based Oil-Film Pressure Measurement in Journal Bearings. Mu, B., +, TIM May 2019 1575-1581
- Height Measurement in Seamless Indoor/Outdoor Infrastructure-Free Navigation. *Rantanen, J.*, +, *TIM April 2019 1199-1209*
- On the Design of Force Sensors Based on Frustrated Total Internal Reflection. Lavatelli, A., +, TIM Oct. 2019 4065-4074
- The Status of PTB's Nanonewton Force Facility. Nesterov, V., +, TIM June 2019 1982-1989

### Pressure sensors

- A Robust Wrist Pulse Acquisition System Based on Multisensor Collaboration and Signal Quality Assessment. *Jiang, Z.*, +, *TIM Dec. 2019 4807-4816*
- Height Measurement in Seamless Indoor/Outdoor Infrastructure-Free Navigation. Rantanen, J., +, TIM April 2019 1199-1209
- On the Design of Force Sensors Based on Frustrated Total Internal Reflection. Lavatelli, A., +, TIM Oct. 2019 4065-4074

## Principal component analysis

- Comparison Study of Different Features for Pocket Length Quantification of Angular Defects Using Eddy Current Pulsed Thermography. *Zhu*, *J*., +, *TIM May 2019 1373-1381*
- Early Fault Diagnosis and Classification of Ball Bearing Using Enhanced Kurtogram and Gaussian Mixture Model. *Hong, Y.*, +, *TIM Dec. 2019* 4746-4755

- Fault Detection for Rolling-Element Bearings Using Multivariate Statistical Process Control Methods. *Jin, X.*, +, *TIM Sept. 2019 3128-3136*
- Low-order Nonlinear Finite-Impulse Response Soft Sensors for Ionic Electroactive Actuators Based on Deep Learning. *Ando, B., +, TIM May 2019 1637-1646*
- Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network. Wei, X., +, TIM Nov. 2019 4481-4492
- Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. Acharyya, D., +, TIM Aug. 2019 3004-3011

#### **Printed circuits**

- A High-Frequency and High Spatial Resolution Probe Design for EMI Prediction. *Yang, R.*, +, *TIM Aug. 2019 3012-3019*
- A High-Sensitivity Resonant Tangential E-Probe With Loaded Improved Dipole and Embedded Integrated Balun. Wang, J., +, TIM Aug. 2019 3042-3044
- A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. de Morais Franca, M.B., +, TIM Feb. 2019 606-613
- An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836
- Design and Characterization of a Fringing Field Capacitive Soil Moisture Sensor. *Protim Goswami, M.*, +, *TIM March 2019 913-922*
- Design and Evaluation of a USB Isolator for Medical Instrumentation. Gonzalez-Briceno, G., +, TIM March 2019 797-806
- Electromagnetic Tracking Using Modular, Tiled Field Generators. *Jaeger*, H.A., +, TIM Dec. 2019 4845-4852
- Improved-Sensitivity Resonant Electric-Field Probes Based on Planar Spiral Stripline and Rectangular Plate Structure. Wang, J., +, TIM March 2019 882-894
- PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. Chakraborty, M., +, TIM Jan. 2019 189-196
- Wideband Dielectric Characterization of 3-D Printable Triethylene Glycol Dimethacrylate Ester Plastic. *Sharma, K.*, +, *TIM Nov. 2019 4419-4426*

#### **Probability**

- A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh, S.*, +, *TIM March* 2019 646-655
- An Enhanced Mutated Particle Filter Technique for System State Estimation and Battery Life Prediction. Ahwiadi, M., +, TIM March 2019 923-935
- Interval State Estimation for Low-Voltage Distribution Systems Based on Smart Meter Data. *Huang, M.*, +, *TIM Sept. 2019 3090-3099*
- Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks. Feng, B., +, TIM May 2019 1252-1260
- Probabilistic Framework for Dynamic Measurements for Markovian Models With a Uniform Prior for the Measurand. *Rossi, G.B.*, +, *TIM Nov. 2019* 4357-4367
- Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

#### **Probes**

- A High-Frequency and High Spatial Resolution Probe Design for EMI Prediction. *Yang, R.*, +, *TIM Aug. 2019 3012-3019*
- A High-Sensitivity Resonant Tangential E-Probe With Loaded Improved Dipole and Embedded Integrated Balun. Wang, J., +, TIM Aug. 2019 3042-3044
- Development of a Nonintrusive True-RMS AC Voltage Measurement Probe. Shenil, P.S., +, TIM Oct. 2019 3899-3906
- Uncertainty Analysis Method Including Influence of Probe Alignment on On-Wafer Calibration Process. Sakamaki, R., +, TIM June 2019 1748-1755

#### Process control

State Estimation of Slow-Rate Integrated Measurement Systems in the Presence of Parametric Uncertainties. Salehi, Y., +, TIM Oct. 2019 3983-3991

### **Process monitoring**

Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501

#### **Product quality**

- Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131
- Tea Quality Prediction by Sparse Modeling of Electronic Tongue Signals. Saha, P., +, TIM Sept. 2019 3046-3053

### Production engineering computing

- Classification of Manufacturing Defects in Multicrystalline Solar Cells With Novel Feature Descriptor. Su, B., +, TIM Dec. 2019 4675-4688
- Development of a Novel Linear ERT Sensor to Measure Surface Deposits. Ren, Z., +, TIM March 2019 754-761
- Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. He, Q., +, TIM Oct. 2019 3456-3467
- Real-Time Image-Based Defect Inspection System of Internal Thread for Nut. Lin, C., +, TIM Aug. 2019 2830-2848
- Surface Defects Detection Based on Adaptive Multiscale Image Collection and Convolutional Neural Networks. Sun, J., +, TIM Dec. 2019 4787-4797
- Tea Quality Prediction by Sparse Modeling of Electronic Tongue Signals. Saha, P., +, TIM Sept. 2019 3046-3053
- Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. *Pan, D.*, +, *TIM Oct.* 2019 3576-3588

#### **Production equipment**

Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

#### **Productivity**

Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. *Zhang, R.*, +, *TIM April 2019 1120-1131* 

#### **Proteins**

- A New Device Based on Interferometric Optical Detection Method for Label-Free Screening of C-Reactive Protein. *Maigler, M.V., +, TIM Sept.* 2019 3193-3199
- Highly Sensitive SPR Biosensor Based on Graphene Oxide and Staphylococcal Protein A Co-Modified TFBG for Human IgG Detection. *Wang, Q.*, +, *TIM Sept. 2019 3350-3357*

### **Protocols**

- A Fully Programmable White-Rabbit Node for the SKA Telescope PPS Distribution System. *Jimenez-Lopez, M.*, +, *TIM Feb. 2019 632-641*
- A Measurement Methodology for the Characterization of a Compensated Nonlinear Energy Harvester for Vertical Operation. *Ando, B.*, +, *TIM Aug.* 2019 3032-3041
- An Optical Sampling System for Distributed Atmospheric Particulate Matter. *Lombardo, L.*, +, *TIM July 2019 2396-2403*
- Modeling a Nonlinear Harvester for Low Energy Vibrations. Ando, B., +, TIM May 2019 1619-1627
- Scalable Wi-Fi Client Self-Positioning Using Cooperative FTM-Sensors. Banin, L., +, TIM Oct. 2019 3686-3698
- Uncertainty Analysis in Time Distribution Mechanisms for OMS Smart Meters: The Last-Mile Time Synchronization Issue. *Rinaldi, S.*, +, *TIM March 2019 693-703*

# **Prototypes**

A Low-Cost LED-Based Solar Simulator. *Lopez-Fraguas*, E., +, *TIM Dec.* 2019 4913-4923

#### Pulse measurement

- A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. de Morais Franca, M.B., +, TIM Feb. 2019 606-613
- An Improved Match Method of Capacitive Divider for Measurement of Nanosecond-Range HV Pulses. Yu, B., +, TIM Oct. 2019 4146-4151

#### Pulse position modulation

Ultrasonic Distance Measurement Method With Crosstalk Rejection at High Measurement Rate. Shin, S., +, TIM April 2019 972-979

### Pulse width modulation

Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501

# Pumps

3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications. S. B., P., +, TIM July 2019 2648-2655

#### **PWM** inverters

Multilevel PWM: A Tool to Explore Insulation PD Characteristics. *Hammarstrom, T.J.A., TIM Oct.* 2019 4075-4084

### PWM power converters

MLMVNNN for Parameter Fault Detection in PWM DC–DC Converters and Its Applications for Buck and Boost DC–DC Converters. *Luchetta*, A., +, *TIM Feb.* 2019 439-449

#### Pyroelectric detectors

Pulse Pileup Correction of Signals From a Pyroelectric Sensor for Phase-Insensitive Ultrasound Computed Tomography. *Baker, C.*, +, *TIM Oct. 2019* 3920-3931

0

#### **QR** codes

MLMVNNN for Parameter Fault Detection in PWM DC–DC Converters and Its Applications for Buck and Boost DC–DC Converters. *Luchetta*, A., +, *TIM Feb.* 2019 439-449

### Quadrature amplitude modulation

Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems. *Gupta, R.*, +, *TIM Aug.* 2019 3020-3031

Nonlinear Characterization and Distortion Mitigation in Six-Port Modulator. Pathak, C., +, TIM April 2019 1178-1188

### Quadrature phase shift keying

Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems. *Gupta, R.*, +, *TIM Aug.* 2019 3020-3031

#### Quality control

Surface Defects Detection Based on Adaptive Multiscale Image Collection and Convolutional Neural Networks. Sun, J., +, TIM Dec. 2019 4787-4797

Thickness and Conductivity Measurement of Multilayered Electricity-Conducting Coating by Pulsed Eddy Current Technique: Experimental Investigation. Wang, Z., +, TIM Sept. 2019 3166-3172

#### **Quantum Hall effect**

AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K. *Kucera*, *J.*, +, *TIM June 2019 2106-2112* 

Graphene Devices for Tabletop and High-Current Quantized Hall Resistance Standards. *Rigosi, A.F.*, +, *TIM June 2019 1870-1878* 

Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges. *Kim, D.B.*, +, *TIM June 2019 1941-1947* 

### Quantum theory

Frequency Extension of Atomic Measurement of Microwave Strength Using Zeeman Effect. *Kinoshita, M.*, +, *TIM June 2019 2274-2279* 

### Quartz

On-Wafer Coplanar Waveguide Standards for S-Parameter Measurements of Balanced Circuits Up to 40 GHz. *Pham, T.D.*, +, *TIM June 2019 2160-2167* 

### Quartz crystal microbalances

QCM-Micropillar-Based Coupled Resonators in the Detection of Gas Mass Flow Rates. *Kashan, M.A.M.*, +, *TIM Jan. 2019 303-305* 

R

#### Radar antennas

A Cost-and-Time Effective Way to Determine Minimum Target Size of Micropower Impulse Radar Sensor. *Tseng, V.*, +, *TIM Sept. 2019 3321-3328* 

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. Horst, M.J., +, TIM Nov. 2019 4400-4411

#### Radar clutter

A DC-Coupled High Dynamic Range Biomedical Radar Sensor With Fast-Settling Analog DC Offset Cancelation. *Tang, D.*, +, *TIM May 2019* 1441-1450

# Radar computing

A Cost-and-Time Effective Way to Determine Minimum Target Size of Micropower Impulse Radar Sensor. *Tseng, V.*, +, *TIM Sept. 2019 3321-3328* 

#### Radar cross-sections

A Near-Field to Far-Field RCS Measurement Method for Multiple-Scattering Target. Hu, C., +, TIM Oct. 2019 3733-3739

#### Radar detection

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. Horst, M.J., +, TIM Nov. 2019 4400-4411

### Radar imaging

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. Horst, M.J., +, TIM Nov. 2019 4400-4411

Effect of Instrument Frequency Uncertainty on Wideband Microwave Synthetic Aperture Radar Images. Horst, M.J., +, TIM Jan. 2019 151-159

Fast Fourier-Based Implementation of Synthetic Aperture Radar Algorithm for Multistatic Imaging System. *Abbasi, M.*, +, *TIM Sept. 2019 3339-3349* Nondestructive Evaluation of Microwave-Penetrable Pipes by Synthetic Aperture Imaging Enhanced by Full-Wave Field Propagation Model. *Laviada, J.*, +, *TIM April 2019 1112-1119* 

#### Radar receivers

A Cost-and-Time Effective Way to Determine Minimum Target Size of Micropower Impulse Radar Sensor. *Tseng, V.*, +, *TIM Sept. 2019 3321-3328* 

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. *Horst, M.J.*, +, *TIM Nov. 2019 4400-4411* 

### Radar resolution

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. Horst, M.J., +, TIM Nov. 2019 4400-4411

#### Radar signal processing

Blind Separation of Doppler Human Gesture Signals Based on Continuous-Wave Radar Sensors. Gu, Z., +, TIM July 2019 2659-2661

#### Radiation pressure

Design, Implementation, and Analysis of a 3-D Magnetic Tweezer System With High Magnetic Field Gradient. *Zhang, X.*, +, *TIM March 2019 680-687* 

FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386* 

Radiation-Pressure-Enabled Traceable Laser Sources at CW Powers up to 50 kW. Williams, P.A., +, TIM June 2019 1833-1839

### Radiation therapy

Contactless Monitoring of Pulse Rate and Eye Movement for Uveal Melanoma Patients Undergoing Radiation Therapy. *Lin, Y., +, TIM Feb. 2019* 474-482

# Radio links

Unattended Acoustic Sensor Systems For Source Detection, Classification, and Tracking. *Yaremenko, V.*, +, *TIM Feb. 2019 344-354* 

#### Radio network

Effects of Real Instrument on Performance of an Energy Detection-Based Spectrum Sensing Method. *Capriglione, D., +, TIM May 2019 1302-1312* 

## Radio receivers

Design and Implementation of a High-Sensitivity and Compact-Size IFM Receiver. Rahimpour, H., +, TIM July 2019 2602-2609

Performance Evaluation of a Time-Domain Microwave System for Medical Diagnostics. *Zeng, X., +, TIM Aug. 2019 2880-2889* 

Software-Defined Radio GNSS Instrumentation for Spoofing Mitigation: A Review and a Case Study. Schmidt, E., +, TIM Aug. 2019 2768-2784

## Radio spectrum management

Effects of Real Instrument on Performance of an Energy Detection-Based Spectrum Sensing Method. *Capriglione, D., +, TIM May 2019 1302-1312* PESA: Probabilistic Efficient Storage Algorithm for Time-Domain Spectrum Measurements. *Al Kalaa, M.O., +, TIM Feb. 2019 325-333* 

# Radio transceivers

An Indoor Ultrasonic System for Autonomous 3-D Positioning. *Carotenuto*, R., +, TIM July 2019 2507-2518

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. *Horst*, M.J., +, TIM Nov. 2019 4400-4411

#### Radio-over-fiber

Design of a Distributed UHF Sensor Array System for PD Detection and Location in Substation. *Hu*, *Y*, +, *TIM June 2019 1844-1851* 

#### Radiofrequency identification

A Blind Calibration Method for Phase-of-Arrival-Based Localization of Passive UHF RFID Transponders. Scherhaufl, M., +, TIM Jan. 2019 261-268

- A Measurement Strategy to Assess the Optimal Design of an RFID-Based Navigation Aid. *Ando, B., +, TIM July 2019 2356-2362*
- A SAR-Based Measurement Method for Passive-Tag Positioning With a Flying UHF-RFID Reader. Buffi, A., +, TIM March 2019 845-853
- Passive UHF-RFID Localization Based on the Similarity Measurement of Virtual Reference Tags. Mo, L., +, TIM Aug. 2019 2926-2933
- Reducing RF Distance Error by Characterizing Multipath. Whitney, A.M., +, TIM Sept. 2019 3329-3338
- RFID 3-D Indoor Localization for Tag and Tag-Free Target Based on Interference. *Liu*, *M*., +, *TIM Oct. 2019 3718-3732*
- Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM. Wang, T., +, TIM March 2019 818-828

#### Radiofrequency interference

- RFID 3-D Indoor Localization for Tag and Tag-Free Target Based on Interference. *Liu*, *M*., +, *TIM Oct. 2019 3718-3732*
- Software-Defined Radio GNSS Instrumentation for Spoofing Mitigation: A Review and a Case Study. *Schmidt, E., +, TIM Aug. 2019 2768-2784*

### Radiofrequency measurement

- A Pigeonhole Principle-Based Method for Estimating the Resonant Frequency of SAWR Sensors. *Khoshakhlagh, M.*, +, *TIM Nov. 2019 4502-4509*
- AC Voltage Measurements to 120 V With a Josephson Arbitrary Waveform Synthesizer and an Inductive Voltage Divider. *Georgakopoulos*, D., +, TIM June 2019 1935-1940
- Determination of AC–DC Transfer Difference of Calculable Thermal Voltage Converters in 1–30-MHz Frequency Range. *Grzenik, M.*, +, *TIM June* 2019 2072-2077
- Four-Terminal Pair Digital Sampling Impedance Bridge up to 1MHz. Maslan, S., +, TIM June 2019 1860-1869
- Harmonic Power Standard of VTT MIKES. Lehtonen, T.A., TIM June 2019 2047-2052
- Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. *Das, S., +, TIM Sept. 2019 3308-3320*
- Measurement Methodology for Determining the Optimal Frequency Domain Configuration to Accurately Record WiFi Exposure Levels. *Fernandez, M.*, +, *TIM Feb. 2019 547-557*
- Novel Broadband Calibration Method of Current Shunts Based on VNA. Ouameur, M., +, TIM March 2019 854-863
- Null Technique for Precision RF Phase Shift Measurements. Widarta, A., TIM June 2019 1840-1843
- Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088
- Self-Calibration and Verification of Phase Angle Errors of Two Voltage Dividers at High Frequencies. Shi, Z., +, TIM June 2019 2053-2059
- Toward a Calculable Standard Shunt for Current Measurements at 10 A and Up To 1 MHz. *Ouameur, M.*, +, *TIM June 2019 2215-2222*

### Radiofrequency power amplifiers

Output Power and Gain Monitoring in RF CMOS Class A Power Amplifiers by Thermal Imaging. *Perpina, X.*, +, *TIM Aug. 2019 2861-2870* 

# Radiometers

Noise Synthesis Technique in Time Domain for Metrology Application. *Gu*, *D.*, +, *TIM June 2019 2288-2294* 

#### Radionavigation

- A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh*, S., +, *TIM March* 2019 646-655
- An Indoor Ultrasonic System for Autonomous 3-D Positioning. *Carotenuto*, R., +, *TIM July 2019 2507-2518*

## Radiotelescopes

A Fully Programmable White-Rabbit Node for the SKA Telescope PPS Distribution System. *Jimenez-Lopez, M.*, +, *TIM Feb. 2019 632-641* 

## Radiowave propagation

- Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems. *Gupta, R.*, +, *TIM Aug.* 2019 3020-3031
- Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking. *Tian*, *Q*., +, *TIM Oct.* 2019 4028-4037

#### Radon transforms

Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform. *Cortes-Osorio, J.A.*, +, *TIM Oct. 2019 4038-4050* 

#### Rails

- A Coarse-to-Fine Model for Rail Surface Defect Detection. Yu, H., +, TIM March 2019 656-666
- An Automated System for Position Monitoring and Correction of Chord-Based Rail Corrugation Measuring Points. *Chen, L.*, +, *TIM Jan. 2019* 250-260
- Comparison Study of Different Features for Pocket Length Quantification of Angular Defects Using Eddy Current Pulsed Thermography. *Zhu*, *J*., +, *TIM May 2019 1373-1381*

#### Railway electrification

Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. *Wang, H., +, TIM Oct. 2019 3536-3547* Pantograph-to-OHL Arc: Conducted Effects in DC Railway Supply System. *Crotti, G., +, TIM Oct. 2019 3861-3870* 

#### Railway engineering

- A CNN-Based Defect Inspection Method for Catenary Split Pins in High-Speed Railway. Zhong, J., +, TIM Aug. 2019 2849-2860
- An Automated System for Position Monitoring and Correction of Chord-Based Rail Corrugation Measuring Points. *Chen, L.*, +, *TIM Jan. 2019* 250-260
- Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning. *Kang*, *G.*, +, *TIM Aug.* 2019 2679-2690
- Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. Wang, H., +, TIM Oct. 2019 3536-3547

#### Railway safety

- An Automated System for Position Monitoring and Correction of Chord-Based Rail Corrugation Measuring Points. Chen, L., +, TIM Jan. 2019 250,260
- Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning. *Kang*, *G*., +, *TIM Aug.* 2019 2679-2690
- Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. *Wang, H., +, TIM Oct. 2019 3536-3547* PAC Interaction Inspection Using Real-Time Contact Point Tracking. *Shen, Y., +, TIM Oct. 2019 4051-4064*

## Railways

- Calibration of Voltage and Current Transducers for DC Railway Systems. Crotti, G., +, TIM Oct. 2019 3850-3860
- Characterization of DC Current Sensors With AC Distortion for Railway Applications. van den Brom, H.E., +, TIM June 2019 2084-2090
- Deep Architecture for High-Speed Railway Insulator Surface Defect Detection: Denoising Autoencoder With Multitask Learning. *Kang, G.*, +, *TIM Aug.* 2019 2679-2690
- Design of Magnetic Resonance Sounding Antenna and Matching Circuit for the Risk Detection of Tunnel Water-Induced Disasters. *Yi*, *X.*, +, *TIM Dec.* 2019 4945-4953
- Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. Wang, H., +, TIM Oct. 2019 3536-3547
- Evaluation of Experimental GNSS and 10-DOF MEMS IMU Measurements for Train Positioning. *Otegui, J.*, +, *TIM Jan. 2019 269-279*
- On-Site Reliable Wheel Size Measurement Based on Multisensor Data Fusion. Pan, X., +, TIM Nov. 2019 4575-4589
- Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V., +, TIM Aug. 2019 2691-2704*

## Random forests

An Inhaler Tracking System Based on Acoustic Analysis: Hardware and Software. Xie, W., +, TIM Nov. 2019 4472-4480

#### Random number generation

Chaos-Based Bitwise Dynamical Pseudorandom Number Generator On FPGA. *Garcia-Bosque*, M., +, TIM Jan. 2019 291-293

#### Random processes

Chaos-Based Bitwise Dynamical Pseudorandom Number Generator On FPGA. *Garcia-Bosque*, M., +, TIM Jan. 2019 291-293

### Rapid prototyping (industrial)

3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications. S. B., P., +, TIM July 2019 2648-2655

#### Ray tracing

The Focal-Plane Detector Package on the TUNL Split-Pole Spectrograph. Marshall, C., +, TIM Feb. 2019 533-546

#### Rayleigh scattering

Truly Distributed Coaxial Cable Sensing Based on Random Inhomogeneities. Zhu, C., +, TIM Nov. 2019 4600-4607

### Reactors (electric)

A High-Precision Current Transformer for Loss Measurements of EHV Shunt Reactors. So, E., +, TIM June 2019 1680-1687

#### Readout electronics

A Monolithic Low-Power Highly Linear pH Measurement System With Power Conditioning System for Medical Application. *Yuan, S., +, TIM Aug. 2019 2871-2879* 

An Advanced 100-Channel Readout System for Nuclear Imaging. Zhao, Z., +, TIM Sept. 2019 3200-3210

Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088

#### Real-time systems

A Current-Driven Six-Channel Potentiostat for Rapid Performance Characterization of Microbial Electrolysis Cells. *Molderez*, *T.R.*, +, *TIM Dec.* 2019 4694-4702

#### Receiving antennas

A Cost-and-Time Effective Way to Determine Minimum Target Size of Micropower Impulse Radar Sensor. *Tseng, V.*, +, *TIM Sept. 2019 3321-3328* 

Design of Magnetic Resonance Sounding Antenna and Matching Circuit for the Risk Detection of Tunnel Water-Induced Disasters. *Yi*, *X.*, +, *TIM Dec.* 2019 4945-4953

## Rectifying circuits

Behavioral Representation of a Bridge Rectifier Using Simplified Volterra Models. Faifer, M., +, TIM May 2019 1611-1618

# Reference circuits

Externally Referenced Current Source With Stability Down to 1 nA/A at 50 mA. Fan, I., +, TIM June 2019 2129-2135

### Reflectivity

Theoretical Analysis of Sensitivity Enhancement by Graphene Usage in Optical Fiber Surface Plasmon Resonance Sensors. *Melo, A.A.d.*, +, *TIM May 2019 1554-1560* 

### Reflectometry

Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019* 215-224

TDR Prediction Method for PIM Distortion in Loose Contact Coaxial Connectors. Yang, H., +, TIM Dec. 2019 4689-4693

Towards Accurate and Wideband *In Vivo* Measurement of Skin Dielectric Properties. *Gao*, Y., +, *TIM Feb*. 2019 512-524

#### Refractive index

Magnetic Field Sensing Based on SPR Optical Fiber Sensor Interacting With Magnetic Fluid. *Zhou, X., +, TIM Jan. 2019 234-239* 

Measurement of Complex Dielectric Constant Using Optical Method. Sengupta, R., +, TIM June 2019 1814-1820

Quantitative Detection of Interfacial Air Gap in Insulation Equipment Based on Terahertz Wave Contrast Method. *Zhang, Z.*, +, *TIM Dec. 2019 4896-4905* 

Uncertainty Assessment of Optical Distance Measurements at Micrometer Level Accuracy for Long-Range Applications. *Guillory, J.*, +, *TIM June* 2019 2260-2267

## Refractive index measurement

Theoretical Analysis of Sensitivity Enhancement by Graphene Usage in Optical Fiber Surface Plasmon Resonance Sensors. *Melo, A.A.d.*, +, *TIM May 2019 1554-1560* 

# Regression analysis

A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh, S.*, +, *TIM March* 2019 646-655

Finger Displacement Sensing: FEM Simulation and Model Prediction of a Three-Layer Electrode Design. *Hu*, *N*., +, *TIM May 2019 1432-1440* 

Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. *Pan, D.*, +, *TIM Oct.* 2019 3576-3588

Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM. Wang, T., +, TIM March 2019 818-828

### Relaxation oscillators

Design and Analysis of a Relaxation Oscillator-Based Interface Circuit for LVDT. *Ganesan, H.*, +, *TIM May 2019 1261-1270* 

Frequency Estimation Based on Moving-Window DFT With Fractional Bin-Index for Capacitance Measurement. *Tyagi, T., +, TIM July 2019 2560-2569* 

## Relay protection

Line Impedance Estimation Based on Synchrophasor Measurements for Power Distribution Systems. *Pegoraro, P.A.*, +, *TIM April 2019 1002-1013* 

### Reliability

A Statistical Approach for Improving the Accuracy of Dry Friction Coefficient Measurement. *Liguori*, C., +, *TIM May 2019 1412-1423* 

CGAN-MBL for Reliability Assessment With Imbalanced Transmission Gear Data. Li, J., +, TIM Sept. 2019 3173-3183

Characterization of DC Current Sensors With AC Distortion for Railway Applications. van den Brom, H.E., +, TIM June 2019 2084-2090

Comparative Study on Modeling Approaches of V-Shaped MEMS Temperature Sensors. Cohen, Y., +, TIM Oct. 2019 3766-3775

Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019* 215-224

Health Assessment Method for Electronic Components Subject to Condition Monitoring and Hard Failure. Zhao, S., +, TIM Jan. 2019 138-150

Low-Cost Online Contact Resistance Measurement of Power Connectors to Ease Predictive Maintenance. *Kadechkar*, A., +, *TIM Dec.* 2019 4825-4833

Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V., +, TIM Aug. 2019 2691-2704* 

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717* 

Using High-Precision Multimeter Digitizer for High Short-Circuit Current Calibration. *Roccato, P.E.*, +, *TIM June 2019 2100-2105* 

## Reliability theory

Health Assessment Method for Electronic Components Subject to Condition Monitoring and Hard Failure. Zhao, S., +, TIM Jan. 2019 138-150

### Remaining life assessment

An Enhanced Mutated Particle Filter Technique for System State Estimation and Battery Life Prediction. *Ahwiadi*, *M.*, +, *TIM March* 2019 923-935

Health Assessment Method for Electronic Components Subject to Condition Monitoring and Hard Failure. *Zhao, S., +, TIM Jan. 2019 138-150* 

Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V., +, TIM Aug. 2019 2691-2704* 

### Remanence

Impulse Exciter of Rotating Blades With an Increased Excitation Force. Prochazka, P., TIM Jan. 2019 300-302

### Remotely operated vehicles

ADMOST: UAV Flight Data Anomaly Detection and Mitigation via Online Subspace Tracking. He, Y., +, TIM April 2019 1035-1044

Robust Visual Detection and Tracking Strategies for Autonomous Aerial Refueling of UAVs. Sun, S., +, TIM Dec. 2019 4640-4652

## Renewable energy sources

A Testing Framework for the Monitoring and Performance Analysis of Distributed Energy Systems. *Rinaldi, S.*, +, *TIM Oct. 2019 3831-3840* 

### Resistors

An Efficient Interface Circuit for Lossy Capacitive Sensors. Khan, A.U., +, TIM March 2019 829-836

Characterization of DC Current Sensors With AC Distortion for Railway Applications. van den Brom, H.E., +, TIM June 2019 2084-2090

Establishment of High-Voltage AC–DC Voltage Transfer Standards in 1–100-kHz Range at NMIJ. Fujiki, H., +, TIM June 2019 1921-1926

Four-Terminal Pair Digital Sampling Impedance Bridge up to 1MHz. Maslan, S., +, TIM June 2019 1860-1869 Interlaboratory Nanoamp Current Comparison With Subpart-Per-Million Uncertainty. Giblin, S.P., +, TIM June 2019 1996-2002

Modeling and Validation of Fixture-Induced Error for Impedance Measurements. Nelson, B.W., +, TIM Jan. 2019 129-137

Traceability Chain at KRISS from DC Quantum Hall Resistance to Farad Using Coaxial Bridges. *Kim, D.B., +, TIM June 2019 1941-1947* 

#### Resonators

Electromagnetic Metrology for Nano- Electromechanical Systems. *Hao, L.*, +, *TIM June 2019 1827-1832* 

Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088

#### Resource allocation

Noise Power Estimators in ISM Radio Environments: Performance Comparison and Enhancement Using a Novel Samples Separation Technique. *Nikonowicz, J., +, TIM Jan. 2019 105-115* 

#### Respiratory system

An Inhaler Tracking System Based on Acoustic Analysis: Hardware and Software. Xie, W., +, TIM Nov. 2019 4472-4480

#### Reviews

Distributed Measurement of Polarization Characteristics for a Multifunctional Integrated Optical Chip: A Review. Yu, Z., +, TIM May 2019 1543-1553

#### Risk management

Wireless Sensor Network System for Landslide Monitoring and Warning. Giri, P., +, TIM April 2019 1210-1220

#### Road traffic

Trip-Based Measures of Naturalistic Driving: Considerations and Connections With Cognitive Status in Older Adult Drivers. Howcroft, J., +, TIM July 2019 2451-2459

#### Robot sensing systems

OPTICS-Based Template Matching for Vision Sensor-Based Shoe Detection in Human–Robot Coexisting Environments. *Paral, P.*, +, *TIM Nov. 2019* 4276-4284

# **Robot vision**

A Novel Global Localization Approach Based on Structural Unit Encoding and Multiple Hypothesis Tracking. *Gao, H., +, TIM Nov. 2019 4427-4442* Informational Framework for Minimalistic Visual Odometry on Outdoor Robot. *Al Hage, J., +, TIM Aug. 2019 2988-2995* 

Monocular Vision-Based Parameter Estimation for Mobile Robotic Painting. Zhao, Q., +, TIM Oct. 2019 3589-3599

Robust Visual Detection and Tracking Strategies for Autonomous Aerial Refueling of UAVs. Sun, S., +, TIM Dec. 2019 4640-4652

## Robust control

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao*, *X.*, +, *TIM Nov. 2019 4285-4299* 

#### Rods (structures)

Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors. *Waters, D.H.*, +, *TIM Feb. 2019 595-605* 

# Rolling bearings

Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233* 

Early Fault Diagnosis and Classification of Ball Bearing Using Enhanced Kurtogram and Gaussian Mixture Model. *Hong, Y.*, +, *TIM Dec. 2019* 4746-4755

Fault Detection for Rolling-Element Bearings Using Multivariate Statistical Process Control Methods. *Jin, X.*, +, *TIM Sept. 2019 3128-3136* 

Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019* 2819-2829

# Rotating bodies

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S.*, +, *TIM July 2019 2335-2345* 

#### **Rotational states**

Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants. *Constantin, F.L., TIM June 2019 2151-2159* 

#### **Rotational-vibrational states**

Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants. *Constantin, F.L., TIM June 2019 2151-2159* 

#### Rotors

A Joint Filter Approach for Reliable Power System State Estimation. Yu, Y., +, TIM Jan. 2019 87-94

Broken Rotor Bar Detection in Induction Motors Based on Air-Gap Rotational Magnetic Field Measurement. *Soleimani, Y.*, +, *TIM Aug. 2019* 2916-2925

Resolver-To-Digital Conversion Based on Acceleration-Compensated Angle Tracking Observer. Wang, F., +, TIM Oct. 2019 3494-3502

#### RSSI

Indoor Localization on Smartphones Using Built-In Sensors and Map Constraints. Xia, H., +, TIM April 2019 1189-1198

Passive UHF-RFID Localization Based on the Similarity Measurement of Virtual Reference Tags. Mo, L., +, TIM Aug. 2019 2926-2933

Reducing RF Distance Error by Characterizing Multipath. Whitney, A.M., +, TIM Sept. 2019 3329-3338

RSSI-Based Indoor Localization and Identification for ZigBee Wireless Sensor Networks in Smart Homes. Bianchi, V., +, TIM Feb. 2019 566-575

#### Rubber

Fiber Bragg Grating-Based Oil-Film Pressure Measurement in Journal Bearings. Mu, B., +, TIM May 2019 1575-1581

Quantitative Detection of Interfacial Air Gap in Insulation Equipment Based on Terahertz Wave Contrast Method. *Zhang, Z.*, +, *TIM Dec. 2019 4896-4905* 

## Rydberg states

Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants. *Constantin, F.L., TIM June 2019 2151-2159* 

S

## S-parameters

A Self-Gap-Correction Method for Accurate Permittivity Measurement Using the Hybrid Optimization Algorithm. *Xu*, *H*., +, *TIM June 2019 1781-1787* 

Concentration Measurement of Microliter-Volume Water-Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

Measurement Method of Amplitude Ratios and Phase Differences Based on Power Detection Among Multiple Ports. *Choi, U.*, +, *TIM Dec. 2019* 4615-4617

On-Wafer Coplanar Waveguide Standards for S-Parameter Measurements of Balanced Circuits Up to 40 GHz. *Pham, T.D.*, +, *TIM June 2019 2160-2167* 

Partially Filled Substrate Integrated Waveguide-Based Microwave Technique for Broadband Dielectric Characterization. *Tiwari, N.K.*, +, *TIM Aug.* 2019 2907-2915

### Sampling methods

A Novel Measurement Data Classification Algorithm Based on SVM for Tracking Closely Spaced Targets. *Zhao*, *Z.*, +, *TIM April 2019 1089-1100* Asynchronous Optical Sampling for Laser-Based Vector Network Analysis on Coplanar Waveguides. *Struszewski*, *P.*, +, *TIM June 2019 2295-2302* 

Improved Sine-Fitting Algorithms for Measurements of Complex Ratio of AC Voltages by Asynchronous Sequential Sampling. *Augustyn, J.*, +, *TIM June 2019 1659-1665* 

Moving Photovoltaic Installations: Impacts of the Sampling Rate on Maximum Power Point Tracking Algorithms. *Schuss, C.*, +, *TIM May 2019* 1485-1493

#### Satellite navigation

A Low-Cost Approach of Magnetic Field-Based Location Validation for Global Navigation Satellite Systems. *Huang, G.*, +, *TIM Dec. 2019 4937-4944* 

A SAR-Based Measurement Method for Passive-Tag Positioning With a Flying UHF-RFID Reader. *Buffi*, A., +, *TIM March 2019 845-853* 

### SCADA systems

A New Hybrid State Estimation Considering Different Accuracy Levels of PMU and SCADA Measurements. *Kabiri, M., +, TIM Sept. 2019 3078-3089* 

Optimum Placement of Phasor Measurement Units in Power Systems. *Sun*, *L.*, +, *TIM Feb. 2019 421-429* 

#### Scanning electron microscopy

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha, T.*, +, *TIM March 2019 903-912* 

#### Scattering

Time-Domain Gating Applied to the Quantitative Evaluation of Soft Defects in Embedded Electric Cables. *Loete, F., TIM Nov. 2019 4368-4375* 

#### Scattering parameters

Wideband Dielectric Characterization of 3-D Printable Triethylene Glycol Dimethacrylate Ester Plastic. *Sharma*, K., +, *TIM Nov. 2019 4419-4426* 

#### Seals (stoppers)

Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network. *Jin, Y., +, TIM April 2019 1026-1034* 

#### Search methods

A Current-Driven Six-Channel Potentiostat for Rapid Performance Characterization of Microbial Electrolysis Cells. *Molderez*, *T.R.*, +, *TIM Dec.* 2019 4694-4702

#### Search problems

Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233* 

### Secondary cells

An Enhanced Mutated Particle Filter Technique for System State Estimation and Battery Life Prediction. Ahwiadi, M., +, TIM March 2019 923-935

Hardware Platform to Detect Fat Percent in Milk Using a Lipase Immobilized PMMA-Coated Sensor. *Chakraborty, M.*, +, *TIM Nov. 2019 4526-4534* 

#### Security

Using Blockchains to Implement Distributed Measuring Systems. *Melo*, W.S., +, TIM May 2019 1503-1514

### Seebeck effect

Spincaloritronic Measurements: A Round Robin Comparison of the Longitudinal Spin Seebeck Effect. Sola, A., +, TIM June 2019 1765-1773

### Semiconductor device measurement

Measurements of Parameters of the Thermal Model of the IGBT Module. Gorecki, K., +, TIM Dec. 2019 4864-4875

### Semiconductor device models

Measurements of Parameters of the Thermal Model of the IGBT Module. Gorecki, K., +, TIM Dec. 2019 4864-4875

### Semiconductor lasers

Self-Calibrated Multiharmonic CO<sub>2</sub> Sensor Using VCSEL for Urban *In Situ* Measurement. *Lan, L., +, TIM April 2019 1140-1147* 

Uncertainty Assessment of Optical Distance Measurements at Micrometer Level Accuracy for Long-Range Applications. *Guillory, J.*, +, *TIM June* 2019 2260-2267

## Sensitivity analysis

Pantograph-to-OHL Arc: Conducted Effects in DC Railway Supply System. Crotti, G., +, TIM Oct. 2019 3861-3870

Planar Multijunction Thermal Converters With Increased Sensitivity Operated in Hermetically Sealed Housings Filled With Noble Gas. *Funck*, *T.*, +, *TIM June 2019 2003-2006* 

PMU-Based ROCOF Measurements: Uncertainty Limits and Metrological Significance in Power System Applications. *Frigo, G.*, +, *TIM Oct. 2019* 3810-3822

### Sensor arrays

Design of a Distributed UHF Sensor Array System for PD Detection and Location in Substation. Hu, Y., +, TIM June 2019 1844-1851

Geomagnetic Compensation for the Rotating of Magnetometer Array During Magnetic Tracking. Dai, H., +, TIM Sept. 2019 3379-3386

High-Density Large-Scale TMR Sensor Array for Magnetic Field Imaging. Ye. C., +, TIM July 2019 2594-2601

Impact of Coreless Current Transformer Position on Current Measurement. Ma, X., +, TIM Oct. 2019 3801-3809

Magnetic Source Imaging Using a Pulsed Optically Pumped Magnetometer Array. Borna, A., +, TIM Feb. 2019 493-501

Measurement System Based on Electrostatic Sensors to Detect Moving Charged Debris With Planar-Isotropic Accuracy. *Addabbo, T.*, +, *TIM March 2019 837-844* 

Practical Current Distribution Measurement Systems for Lead Cells. *Harrison, H.T.*, +, *TIM Sept. 2019 3151-3165* 

#### Sensor fusion

A Differential Accelerometer System: Offline Calibration and State Estimation. *Belkhouche, F., TIM Sept. 2019 3109-3118* 

A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. de Morais Franca, M.B., +, TIM Feb. 2019 606-613

A Multiview Discriminant Feature Fusion-Based Nonlinear Process Assessment and Diagnosis: Application to Medical Diagnosis. *Hazarika, A.*, +, *TIM July 2019 2498-2506* 

A Novel Global Localization Approach Based on Structural Unit Encoding and Multiple Hypothesis Tracking. Gao, H., +, TIM Nov. 2019 4427-4442

A Robust Wrist Pulse Acquisition System Based on Multisensor Collaboration and Signal Quality Assessment. *Jiang, Z.*, +, *TIM Dec. 2019 4807-4816* 

Evaluation of Experimental GNSS and 10-DOF MEMS IMU Measurements for Train Positioning. *Otegui*, *J.*, +, *TIM Jan. 2019 269-279* 

High-Density Large-Scale TMR Sensor Array for Magnetic Field Imaging. Ye, C., +, TIM July 2019 2594-2601

Informational Framework for Minimalistic Visual Odometry on Outdoor Robot. *Al Hage, J.*, +, *TIM Aug. 2019 2988-2995* 

On-Site Reliable Wheel Size Measurement Based on Multisensor Data Fusion. *Pan, X., +, TIM Nov. 2019 4575-4589* 

Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V.*, +, *TIM Aug. 2019 2691-2704* 

RGB-DI Images and Full Convolution Neural Network-Based Outdoor Scene Understanding for Mobile Robots. Qiu, Z., +, TIM Jan. 2019 27-37

Sensory Fusion of Magnetoinertial Data Based on Kinematic Model With Jacobian Weighted-Left-Pseudoinverse and Kalman-Adaptive Gains. *Mihelj, M.*, +, *TIM July 2019 2610-2620* 

Special Section on Sensors Applications Symposium. *Gupta, G.S.*, +, *TIM July 2019 2333-2334* 

Toward High Integrity Personal Localization System Based on Informational Formalism. *Daher, M.*, +, *TIM Nov. 2019 4590-4599* 

### Sensor phenomena and characterization

Special Issue for I<sup>2</sup>MTC 2018. *Rapuano*, S., +, *TIM May 2019 1235-1237* 

### Sensor placement

Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking. *Tian*, *Q*., +, *TIM Oct.* 2019 4028-4037

Indoor Occupancy Awareness and Localization Using Passive Electric Field Sensing. *Tang, X.*, +, *TIM Nov. 2019 4535-4549* 

Toward High Integrity Personal Localization System Based on Informational Formalism. *Daher, M.*, +, *TIM Nov. 2019 4590-4599* 

### Sensor systems

Special Issue for I<sup>2</sup>MTC 2018. *Rapuano, S.*, +, *TIM May 2019 1235-1237* **Sensors** 

A DC-Coupled High Dynamic Range Biomedical Radar Sensor With Fast-Settling Analog DC Offset Cancelation. *Tang, D.*, +, *TIM May 2019* 1441-1450

A Novel Method for Wide Range Electric Current Measurement in Gas-Insulated Switchgears With Shielded Magnetic Measurements. *Khawaja*, *A.H.*, +, *TIM Dec.* 2019 4712-4722

An Acoustic Resonance-Based Liquid Level Detector With Error Compensation. Xu, X., +, TIM April 2019 963-971

Blind Separation of Doppler Human Gesture Signals Based on Continuous-Wave Radar Sensors. Gu, Z., +, TIM July 2019 2659-2661

- Coaxial Probe for Dielectric Measurements of Aerated Pulverized Materials. Neumayer, M., +, TIM May 2019 1402-1411
- Design and Analysis of a Relaxation Oscillator-Based Interface Circuit for LVDT. *Ganesan, H.*, +, *TIM May 2019 1261-1270*
- Design of a Novel Elastic Torque Sensor for Hand Injuries Rehabilitation Based on Bowden Cable. *Zhang, F.*, +, *TIM Sept. 2019 3184-3192*
- Effective Landmark Placement for Robot Indoor Localization With Position Uncertainty Constraints. *Magnago*, V., +, *TIM Nov.* 2019 4443-4455
- Informational Framework for Minimalistic Visual Odometry on Outdoor Robot. *Al Hage, J.*, +, *TIM Aug. 2019 2988-2995*
- Instantaneous Rotation Speed Measurement System Based on Variable Reluctance Sensors for Torsional Vibration Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2363-2373*
- Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. Das, S., +, TIM Sept. 2019 3308-3320
- Low-order Nonlinear Finite-Impulse Response Soft Sensors for Ionic Electroactive Actuators Based on Deep Learning. Ando, B., +, TIM May 2019 1637-1646
- Measuring the Local and Global Variabilities in Body Sway by Nonlinear Poincaré Technology. *Zhang, S.*, +, *TIM Dec. 2019 4817-4824*
- Modeling a Nonlinear Harvester for Low Energy Vibrations. Ando, B., +, TIM May 2019 1619-1627
- Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372
- Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088
- Product-Specific Nonlinear Characterization and Instrument for Illumination Angle Measurement With Manufacturing Defects. *Liu*, G., +, TIM Sept. 2019 3299-3307
- Signal Processing for Capacitive Ice Sensing: Electrode Topology and Algorithm Design. *Neumayer, M.*, +, *TIM May 2019 1458-1466*
- Special Section on Sensors Applications Symposium. Gupta, G.S., +, TIM July 2019 2333-2334
- Synchronous Adaptive Resolver-to-Digital Converter for FPGA-Based High-Performance Control Loops. *Sabatini*, V., +, *TIM Oct.* 2019 3972-3982
- Ultralow-Power Synchronous Demodulation for Low-Level Sensor Signal Detection. *Maya-Hernandez, P.M.*, +, *TIM Oct. 2019 3514-3523*
- Using Blockchains to Implement Distributed Measuring Systems. *Melo, W.S.*, +, *TIM May 2019 1503-1514*

## Servomechanisms

Disturbance Observer-Based Control of Tip-Tilt Mirror for Mitigating Telescope Vibrations. *Tang, T.*, +, *TIM Aug. 2019 2785-2791* 

#### Shafts

- A Linear Direct-Digital Converter for Sinusoidal Encoders. *Bhaskarrao*, N.K., +, TIM July 2019 2570-2578
- Instantaneous Rotation Speed Measurement System Based on Variable Reluctance Sensors for Torsional Vibration Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2363-2373*
- Intelligent Diagnosis of V-Type Marine Diesel Engines Based on Multifeatures Extracted From Instantaneous Crankshaft Speed. Zhang, M., +, TIM March 2019 722-740
- Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors. *Reda, K.*, +, *TIM May 2019 1467-1476*

#### Short-circuit currents

- Estimation of the Power Quantities Below One Signal Period Using DFT Coefficients. Stremfelj, J., +, TIM June 2019 1696-1704
- Using High-Precision Multimeter Digitizer for High Short-Circuit Current Calibration. *Roccato*, *P.E.*, +, *TIM June 2019 2100-2105*

## Sigma-delta modulation

- An Advanced 100-Channel Readout System for Nuclear Imaging. *Zhao*, *Z*., +, *TIM Sept.* 2019 3200-3210
- Autorange Thermal Sigma–Delta Converter for Incident Radiation Measurement. Vitorino, B.A.F., +, TIM March 2019 774-781

#### Signal classification

- A Multiview Discriminant Feature Fusion-Based Nonlinear Process Assessment and Diagnosis: Application to Medical Diagnosis. *Hazarika*, A., +, *TIM July 2019 2498-2506*
- A Novel Measurement Data Classification Algorithm Based on SVM for Tracking Closely Spaced Targets. Zhao, Z., +, TIM April 2019 1089-1100
- A Robust Modulation Classification Method for PSK Signals Using Random Graphs. *Eldemerdash, Y.A.*, +, *TIM Feb. 2019 642-644*
- A Robust Wrist Pulse Acquisition System Based on Multisensor Collaboration and Signal Quality Assessment. *Jiang, Z.*, +, *TIM Dec. 2019 4807-4816*
- Accurate Classification of Seizure and Seizure-Free Intervals of Intracranial EEG Signals From Epileptic Patients. *Lahmiri*, S., +, TIM March 2019 791-796
- Characterization of S<sub>1</sub> and S<sub>2</sub> Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, M., +, TIM Sept. 2019 3211-3220
- Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems. *Gupta, R.*, +, *TIM Aug.* 2019 3020-3031
- Pilots' Fatigue Status Recognition Using Deep Contractive Autoencoder Network. Wu, E.Q., +, TIM Oct. 2019 3907-3919
- Relative Wavelet Entropy Complex Network for Improving EEG-Based Fatigue Driving Classification. *Gao*, Z., +, *TIM July 2019 2491-2497*

#### Signal conditioning circuits

- A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. *de Morais Franca, M.B.*, +, *TIM Feb. 2019 606-613*
- A Precision, Energy-Efficient, Oversampling, Noise-Shaping Differential SAR Capacitance-to-Digital Converter. *Alhoshany, A.*, +, *TIM Feb. 2019* 392-401
- Development of a Nonintrusive True-RMS AC Voltage Measurement Probe. Shenil, P.S., +, TIM Oct. 2019 3899-3906
- Performance Analysis of Oscillator-Based Read-Out Circuit for LVDT. Gunasekaran, V., +, TIM April 2019 1080-1088
- PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. *Chakraborty, M.*, +, *TIM Jan. 2019 189-196*

## Signal denoising

Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli*, A., +, *TIM July 2019 2433-2441* 

# Signal detection

- Bee Swarm Detection Based on Comparison of Estimated Distributions Samples of Sound. Krzywoszyja, G., +, TIM Oct. 2019 3776-3784
- Calibration of Voltage and Current Transducers for DC Railway Systems. Crotti, G., +, TIM Oct. 2019 3850-3860
- Effects of Real Instrument on Performance of an Energy Detection-Based Spectrum Sensing Method. Capriglione, D., +, TIM May 2019 1302-1312
- Linearized Bregman Iterations for Automatic Optical Fiber Fault Analysis.

  Lunglmayr, M., +, TIM Oct. 2019 3699-3711
- Noise Power Estimators in ISM Radio Environments: Performance Comparison and Enhancement Using a Novel Samples Separation Technique. *Nikonowicz, J.*, +, *TIM Jan. 2019 105-115*
- Ultralow-Power Synchronous Demodulation for Low-Level Sensor Signal Detection. *Maya-Hernandez, P.M.*, +, *TIM Oct. 2019 3514-3523*
- Using High-Precision Multimeter Digitizer for High Short-Circuit Current Calibration. *Roccato, P.E.*, +, *TIM June 2019 2100-2105*

### Signal processing

- A Blind Calibration Method for Phase-of-Arrival-Based Localization of Passive UHF RFID Transponders. Scherhaufl, M., +, TIM Jan. 2019 261-268
- A Novel Technique for Fundamental and Harmonic Parameter Estimation Using Nonergodic S-Transform. Yi, J., +, TIM Oct. 2019 3503-3513
- An Approach on MCSA-Based Fault Detection Using Independent Component Analysis and Neural Networks. *Garcia-Bracamonte, J.E.*, +, *TIM May 2019 1353-1361*
- An Indoor Ultrasonic System for Autonomous 3-D Positioning. *Carotenuto*, R., +, *TIM July 2019 2507-2518*
- An Opening Profile Recognition Method for Magnetic Flux Leakage Signals of Defect. *Huang, S.*, +, *TIM June 2019 2229-2236*

Condition Assessment of I&C Cables in Nuclear Power Plants via Stepped-Frequency Waveform Reflectometry. *Lee, C.*, +, *TIM Jan. 2019* 215-224

Dynamic Offset Correction of Electromagnetic Flowmeters. *Linnert, M.A.*, +, *TIM May 2019 1284-1293* 

FRF Measurements Subject to Missing Data: Quantification of Noise, Nonlinear Distortion, and Time-Varying Effects. *Pintelon, R.*, +, *TIM Oct. 2019* 4175-4187

Full Optical Fiber Link Characterization With the BSS-Lasso. Saavedra, R., +. TIM Oct. 2019 4162-4174

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S.*, +, *TIM July 2019 2335-2345* 

Software-Defined Radio GNSS Instrumentation for Spoofing Mitigation: A Review and a Case Study. Schmidt, E., +, TIM Aug. 2019 2768-2784

Tea Quality Prediction by Sparse Modeling of Electronic Tongue Signals. Saha, P., +, TIM Sept. 2019 3046-3053

Thickness and Conductivity Measurement of Multilayered Electricity-Conducting Coating by Pulsed Eddy Current Technique: Experimental Investigation. Wang, Z., +, TIM Sept. 2019 3166-3172

Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019 2819-2829* 

### Signal processing algorithms

Special Issue for I<sup>2</sup>MTC 2018. *Rapuano*, S., +, *TIM May 2019 1235-1237* 

#### Signal reconstruction

An Improved Sine Wave Histogram Test Method for ADC Characterization. Palfi, V., TIM Oct. 2019 3446-3455

Distortion Characterization of Exponential Signal Reconstructed by Low-Chirp Signal. Carni, D.L., +, TIM April 2019 980-986

Pseudohigh-Resolution Spectral Interrogation Scheme for Small Signals From FBG Sensors. *Lim, K., +, TIM Aug. 2019 2964-2970* 

## Signal representation

A Robust Modulation Classification Method for PSK Signals Using Random Graphs. *Eldemerdash*, Y.A., +, TIM Feb. 2019 642-644

Fast Nonlinear Chirplet Dictionary-Based Sparse Decomposition for Rotating Machinery Fault Diagnosis Under Nonstationary Conditions. *Yang, B.*, +, *TIM Dec.* 2019 4736-4745

## Signal resolution

A DC-Coupled High Dynamic Range Biomedical Radar Sensor With Fast-Settling Analog DC Offset Cancelation. *Tang, D.*, +, *TIM May 2019* 1441-1450

## Signal sampling

Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753

An Improved Sine Wave Histogram Test Method for ADC Characterization. Palfi, V., TIM Oct. 2019 3446-3455

Distortion Characterization of Exponential Signal Reconstructed by Low-Chirp Signal. Carni, D.L., +, TIM April 2019 980-986

Doppler Distortion Removal in Wayside Circular Microphone Array Signals. Ouyang, K., +, TIM May 2019 1238-1251

Joint Compensation of Jitter Noise and Time-Shift Errors in Multichannel Sampling System. *Araghi, H.*, +, *TIM Oct. 2019 3932-3941* 

Measurement Methodology for Determining the Optimal Frequency Domain Configuration to Accurately Record WiFi Exposure Levels. *Fernandez, M.*. +, *TIM Feb. 2019 547-557* 

Measurement of the Absolute Phase Error of Digitizers. Crotti, G., +, TIM June 2019 1724-1731

Parameter Measurement of M-Ary PSK Signals With Finite Rate of Innovation. Fu, N., +, TIM May 2019 1271-1283

Simultaneous Estimation of Moving-Vibration Parameters by Sliding Goertzel Algorithm in PLL Technique. Singh, K.M., TIM Feb. 2019 334-343

Tacholess Speed Estimation in Order Tracking: A Review With Application to Rotating Machine Fault Diagnosis. Lu, S., +, TIM July 2019 2315-2332

### Signal to noise ratio

FPGA-Based Implementation of an Artificial Neural Network for Measurement Acceleration in BOTDA Sensors. *Abbasnezhad, M.*, +, *TIM Nov.* 2019 4326-4334

#### Silicon

Electron Paramagnetic Resonance Study on <sup>28</sup>Si Single Crystal for the Future Realization of the Kilogram. *Mizushima*, *S.*, +, *TIM June 2019 1879-1886* Volume Measurement of a <sup>28</sup>Si-Enriched Sphere for a Determination of the Avogadro Constant at NMIJ. *Kuramoto*, *N.*, +, *TIM June 2019 1913-1920* 

#### Silicon radiation detectors

An Advanced 100-Channel Readout System for Nuclear Imaging. *Zhao, Z.*, +, *TIM Sept. 2019 3200-3210* 

### Silicone rubber

Detecting Defects in Porcelain Postinsulator Coated With Room Temperature Vulcanized Silicone Rubber by Pulsed Thermography. *Liu*, *L.*, +, *TIM Jan. 2019* 225-233

#### Silver

A Novel Sensing Methodology to Detect Furfural in Water, Exploiting MIPs, and Inkjet-Printed Optical Waveguides. *Cennamo, N.*, +, *TIM May 2019* 1582-1589

Magnetic Field Sensing Based on SPR Optical Fiber Sensor Interacting With Magnetic Fluid. *Zhou*, *X*., +, *TIM Jan. 2019 234-239* 

Theoretical Analysis of Sensitivity Enhancement by Graphene Usage in Optical Fiber Surface Plasmon Resonance Sensors. *Melo, A.A.d.*, +, *TIM May 2019 1554-1560* 

#### Simulated annealing

Design of Low-Complexity 3-D Underwater Imaging System With Sparse Planar Arrays. *Zhao*, *D.*, +, *TIM Oct. 2019 3418-3432* 

#### Simulation

A Low-Cost LED-Based Solar Simulator. *Lopez-Fraguas, E.*, +, *TIM Dec.* 2019 4913-4923

### Single photon emission computed tomography

Multimodal Sensor Medical Image Fusion Based on Local Difference in Non-Subsampled Domain. Kong, W., +, TIM April 2019 938-951

### Singular value decomposition

A New Method With Hilbert Transform and Slip-SVD-Based Noise-Suppression Algorithm for Noisy Power Quality Monitoring. *Wang, Y., +, TIM April 2019 987-1001* 

Doppler Distortion Removal in Wayside Circular Microphone Array Signals. Ouyang, K., +, TIM May 2019 1238-1251

### Size measurement

On-Site Reliable Wheel Size Measurement Based on Multisensor Data Fusion. *Pan, X.*, +, *TIM Nov. 2019 4575-4589* 

#### Skin

3-D Ultrasound Palmprint Recognition System Based on Principal Lines Extracted at Several Under Skin Depths. *Iula*, A., +, *TIM Dec.* 2019 4653-4662

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. *Horst, M.J.*, +, *TIM Nov. 2019 4400-4411* 

Motion-Artifact Reduction in Capacitive Heart-Rate Measurements by Adaptive Filtering. Xu, L., +, TIM Oct. 2019 4085-4093

Towards Accurate and Wideband *In Vivo* Measurement of Skin Dielectric Properties. *Gao*, Y., +, *TIM Feb. 2019 512-524* 

### Slag

Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. *Pan, D.*, +, *TIM Oct.* 2019 3576-3588

# SLAM (robots)

A Novel Global Localization Approach Based on Structural Unit Encoding and Multiple Hypothesis Tracking. *Gao, H., +, TIM Nov. 2019 4427-4442* 

### Sleep

A Robust Pulse Onset and Peak Detection Method for Automated PPG Signal Analysis System. *Vadrevu*, S., +, *TIM March 2019 807-817* 

### Slot antennas

Wideband Substrate-Integrated Cavity-Backed Elliptical Slot for Microwave Synthetic Aperture Imaging. *Xingyu*, X., +, *TIM July 2019 2665-2667* 

#### Sludge treatment

Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501

# Smart meters

Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure. Pau, M., +, TIM Nov. 2019 4300-4312

Interval State Estimation for Low-Voltage Distribution Systems Based on Smart Meter Data. *Huang, M.*, +, *TIM Sept. 2019 3090-3099* 

The Core for High-Precision Stochastic Smart Grid Meter Based on Low-Resolution Flash ADC. *Urekar, M.*, +, *TIM June 2019 1705-1713* 

Uncertainty Analysis in Time Distribution Mechanisms for OMS Smart Meters: The Last-Mile Time Synchronization Issue. *Rinaldi, S.*, +, *TIM March 2019 693-703* 

#### **Smart phones**

Accurate Step Length Estimation for Pedestrian Dead Reckoning Localization Using Stacked Autoencoders. Gu, F., +, TIM Aug. 2019 2705-2713

Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli, A.*, +, *TIM July 2019 2433-2441* 

Indoor Localization on Smartphones Using Built-In Sensors and Map Constraints. Xia, H., +, TIM April 2019 1189-1198

#### Smart power grids

A New Vibration Testing Platform for Electronic Current Transformers. *Li*, *Z*, +, *TIM March* 2019 704-712

Compensation of Systematic Measurement Errors in a PMU-Based Monitoring System for Electric Distribution Grids. *Pegoraro, P.A.*, +, *TIM Oct.* 2019 3871-3882

Design and Accuracy Analysis of Multilevel State Estimation Based on Smart Metering Infrastructure. Pau, M., +, TIM Nov. 2019 4300-4312

Impact of Current and Power Measurements on Distribution System State Estimation Uncertainty. *Pau, M.*, +, *TIM Oct. 2019 3992-4002* 

Intelligent Failure Diagnosis for Gas Circuit Breakers Based on Dynamic Resistance Measurements. *Abdollah, M.*, +, *TIM Sept. 2019 3066-3077* 

Interval State Estimation for Low-Voltage Distribution Systems Based on Smart Meter Data. *Huang, M.*, +, *TIM Sept. 2019 3090-3099* 

The Core for High-Precision Stochastic Smart Grid Meter Based on Low-Resolution Flash ADC. *Urekar, M.*, +, *TIM June 2019 1705-1713* 

#### Smoothing methods

Exposure Measurement and Fusion via Adaptive Multiscale Edge-Preserving Smoothing. Que, Y., +, TIM Dec. 2019 4663-4674

## Software defined networking

An Efficient and Accurate Link Latency Monitoring Method for Low-Latency Software-Defined Networks. Liao, L., +, TIM Feb. 2019 377-391

# Software radio

Effects of Real Instrument on Performance of an Energy Detection-Based Spectrum Sensing Method. *Capriglione, D.*, +, *TIM May 2019 1302-1312* Noise Power Estimators in ISM Radio Environments: Performance Comparison and Enhancement Using a Novel Samples Separation Technique.

Software-Defined Radio GNSS Instrumentation for Spoofing Mitigation: A Review and a Case Study. *Schmidt, E., +, TIM Aug. 2019 2768-2784* 

Nikonowicz, J., +, TIM Jan. 2019 105-115

#### Soil

A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. de Morais Franca, M.B., +, TIM Feb. 2019 606-613

A Rotation Independent In-Place Inclinometer/Tilt Sensor Based on Fiber Bragg Grating. Maheshwari, M., +, TIM Aug. 2019 2943-2953

Design and Characterization of a Fringing Field Capacitive Soil Moisture Sensor. *Protim Goswami, M.*, +, *TIM March 2019 913-922* 

PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. *Chakraborty*, M., +, TIM Jan. 2019 189-196

#### Solar cells

Classification of Manufacturing Defects in Multicrystalline Solar Cells With Novel Feature Descriptor. Su, B., +, TIM Dec. 2019 4675-4688

### Solid scintillation detectors

The Focal-Plane Detector Package on the TUNL Split-Pole Spectrograph. Marshall, C., +, TIM Feb. 2019 533-546

#### Sonar

Height Measurement in Seamless Indoor/Outdoor Infrastructure-Free Navigation. Rantanen, J., +, TIM April 2019 1199-1209

### Space debris

Measurement System Based on Electrostatic Sensors to Detect Moving Charged Debris With Planar-Isotropic Accuracy. *Addabbo*, *T*., +, *TIM March* 2019 837-844

#### Space division multiplexing

Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems. *Gupta, R.*, +, *TIM Aug.* 2019 3020-3031

# Sparse matrices

Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461

#### Special issues and sections

Conference on Precision Electromagnetic Measurements (CPEM 2018). Allal, D., +, TIM June 2019 1652

Guest Editorial The 2018 IEEE International Symposium on Medical Measurements and Applications Special Section. *Scalise, L.*, +, *TIM July 2019 2394-2395* 

Guest Editors' Foreword Special Section on the 2018 IEEE International Workshop on Applied Measurements for Power Systems (AMPS 2018) Bologna, Italy, September 26–28, 2018. *Ferrero, R.*, +, *TIM Oct. 2019* 3799-3800

Special Issue for I<sup>2</sup>MTC 2018. Rapuano, S., +, TIM May 2019 1235-1237  $\mathbf{Speckle}$ 

3-D Computational Ghost Imaging With Extended Depth of Field for Measurement. *Yang*, Z., +, *TIM Dec.* 2019 4906-4912

#### Spectral analysis

A Hyperspectral Imaging Instrumentation Architecture Based on Accessible Optical Disc Technology and Frequency-Domain Analyses. *Brodie, C.H.*, +, *TIM July 2019 2531-2538* 

Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131

Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V., +, TIM Aug. 2019 2691-2704* 

Reduced Leakage Synchrophasor Estimation: Hilbert Transform Plus Interpolated DFT. Frigo, G., +, TIM Oct. 2019 3468-3483

Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. *Mayer, P., +, TIM July 2019 2346-2355* 

### Spectral analyzers

Measurement Methodology for Determining the Optimal Frequency Domain Configuration to Accurately Record WiFi Exposure Levels. *Fernandez, M.*, +, *TIM Feb. 2019 547-557* 

#### Spectrochemical analysis

Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang, J.*, +, *TIM July 2019* 2387-2393

Self-Calibrated Multiharmonic CO<sub>2</sub> Sensor Using VCSEL for Urban *In Situ* Measurement. *Lan, L., +, TIM April 2019 1140-1147* 

### Spin polarized transport

Spincaloritronic Measurements: A Round Robin Comparison of the Longitudinal Spin Seebeck Effect. *Sola*, A., +, *TIM June 2019 1765-1773* 

# **Splines (mathematics)**

Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753

### **Sport**

Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli*, A., +, *TIM July 2019 2433-2441* 

#### Stability

Simultaneous Estimation of Moving-Vibration Parameters by Sliding Goertzel Algorithm in PLL Technique. Singh, K.M., TIM Feb. 2019 334-343

# Stainless steel

QCM-Micropillar-Based Coupled Resonators in the Detection of Gas Mass Flow Rates. *Kashan, M.A.M.*, +, *TIM Jan. 2019 303-305* 

### Star trackers

INS/CNS Integrated Navigation Based on Corrected Infrared Earth Measurement. Gou, B., +, TIM Sept. 2019 3358-3366

## State estimation

A Differential Accelerometer System: Offline Calibration and State Estimation. Belkhouche, F., TIM Sept. 2019 3109-3118

Informational Framework for Minimalistic Visual Odometry on Outdoor Robot. *Al Hage, J.*, +, *TIM Aug. 2019 2988-2995* 

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao, X.*, +, *TIM Nov. 2019 4285-4299* 

#### State feedback

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao*, *X.*, +, *TIM Nov.* 2019 4285-4299

#### State-space methods

Dynamic Offset Correction of Electromagnetic Flowmeters. *Linnert, M.A.*, +, *TIM May 2019 1284-1293* 

#### Statistical analysis

A Multiview Discriminant Feature Fusion-Based Nonlinear Process Assessment and Diagnosis: Application to Medical Diagnosis. *Hazarika*, A., +, *TIM July 2019 2498-2506* 

A Statistical Approach for Improving the Accuracy of Dry Friction Coefficient Measurement. *Liguori, C.*, +, *TIM May 2019 1412-1423* 

An Enhanced Mutated Particle Filter Technique for System State Estimation and Battery Life Prediction. Ahwiadi, M., +, TIM March 2019 923-935

Bee Swarm Detection Based on Comparison of Estimated Distributions Samples of Sound. Krzywoszyja, G., +, TIM Oct. 2019 3776-3784

Characterization of Biometric Template Aging in a Multiyear, Multivendor Longitudinal Fingerprint Matching Study. *Harvey, J.*, +, *TIM April 2019* 1071-1079

Coaxial Probe for Dielectric Measurements of Aerated Pulverized Materials. Neumayer, M., +, TIM May 2019 1402-1411

Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461

Effective and Efficient Blind Quality Evaluator for Contrast Distorted Images. Yue, G., +, TIM Aug. 2019 2733-2741

High-Accuracy Localization and Calibration for 5-DoF Indoor Magnetic Positioning Systems. *Hehn, M.*, +, *TIM Oct. 2019 4135-4145* 

Improving a Commodity Dust Sensor to Enable Particle Size Analysis. Pedersini, F., TIM Jan. 2019 177-188

Joint Compensation of Jitter Noise and Time-Shift Errors in Multichannel Sampling System. Araghi, H., +, TIM Oct. 2019 3932-3941

Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. He, Q., +, TIM Oct. 2019 3456-3467

Noise Power Estimators in ISM Radio Environments: Performance Comparison and Enhancement Using a Novel Samples Separation Technique. *Nikonowicz, J., +, TIM Jan. 2019 105-115* 

PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. Chakraborty, M., +, TIM Jan. 2019 189-196

Signal Processing for Capacitive Ice Sensing: Electrode Topology and Algorithm Design. *Neumayer, M.*, +, *TIM May 2019 1458-1466* 

#### Statistical distributions

Design of a Distributed UHF Sensor Array System for PD Detection and Location in Substation. Hu, Y., +, TIM June 2019 1844-1851

The Kalman Filter Uncertainty Concept in the Possibility Domain. *Ferrero*, A., +, *TIM Nov. 2019 4335-4347* 

## Statistical process control

Fault Detection for Rolling-Element Bearings Using Multivariate Statistical Process Control Methods. *Jin*, X., +, *TIM Sept. 2019 3128-3136* 

#### Stators

Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning. Kao, I., +, TIM Feb. 2019 310-324

Broken Rotor Bar Detection in Induction Motors Based on Air-Gap Rotational Magnetic Field Measurement. *Soleimani, Y.*, +, *TIM Aug. 2019* 2916-2925

Novel Complex-Valued Stator Current-Based MRAS Estimators With Different Adaptation Mechanisms. *Zerdali, E., +, TIM Oct. 2019 3793-3795* 

## Steel

Fiber Optic Sensors Based on Photoacoustic Effect for Rebar Corrosion Measurement. Du, C., +, TIM Nov. 2019 4559-4565

Generalized Completed Local Binary Patterns for Time-Efficient Steel Surface Defect Classification. Luo, Q., +, TIM March 2019 667-679

Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. He, Q., +, TIM Oct. 2019 3456-3467

#### Steel manufacture

Molten Steel Level Detection From Thermal Image Sequence Based on the Characteristics of Adhesive Flux. *He, Q.*, +, *TIM Oct. 2019 3456-3467* 

#### Stereo image processing

A Novel Stereo Vision Measurement System Using Both Line Scan Camera and Frame Camera. *Liu*, Z., +, *TIM Oct.* 2019 3563-3575

Closed-Loop Optimization of DIC Speckle Patterns Based on Simulated Experiments. *Lavatelli*, A., +, *TIM Nov. 2019 4376-4386* 

Fast Defect Inspection Based on Data-Driven Photometric Stereo. *Ren, M.*, +, *TIM April 2019 1148-1156* 

Person Recognition Using 3-D Palmprint Data Based on Full-Field Sinusoidal Fringe Projection. *Bai*, X., +, *TIM Sept. 2019 3287-3298* 

Pixels and 3-D Points Alignment Method for the Fusion of Camera and LiDAR Data. Xie, S., +, TIM Oct. 2019 3661-3676

Point Cloud and 3-D Surface Reconstruction Using Cylindrical Millimeter-Wave Holography. *Gao*, *J.*, +, *TIM Dec. 2019 4765-4778* 

Tracking a Golf Ball With High-Speed Stereo Vision System. Wang, S., +, TIM Aug. 2019 2742-2754

### Stochastic processes

A Multisignal Wavelet Variance-Based Framework for Inertial Sensor Stochastic Error Modeling. *Radi*, A., +, *TIM Dec.* 2019 4924-4936

Joint Compensation of Jitter Noise and Time-Shift Errors in Multichannel Sampling System. *Araghi, H.*, +, *TIM Oct. 2019 3932-3941* 

State Estimation of Slow-Rate Integrated Measurement Systems in the Presence of Parametric Uncertainties. Salehi, Y., +, TIM Oct. 2019 3983-3991

#### Stochastic programming

A Stochastic Optimization Approach to Magnetometer Calibration With Gradient Estimates Using Simultaneous Perturbations. *Tahir, M.*, +, *TIM Oct. 2019 4152-4161* 

### Strain measurement

Closed-Loop Optimization of DIC Speckle Patterns Based on Simulated Experiments. *Lavatelli*, A., +, *TIM Nov. 2019 4376-4386* 

Monitoring of Overhead Transmission Conductors Subjected to Static and Impact Loads Using Fiber Bragg Grating Sensors. Waters, D.H., +, TIM Feb. 2019 595-605

### Strip line resonators

Improved-Sensitivity Resonant Electric-Field Probes Based on Planar Spiral Stripline and Rectangular Plate Structure. Wang, J., +, TIM March 2019 882-894

# Structural engineering

Comparison Study of Different Features for Pocket Length Quantification of Angular Defects Using Eddy Current Pulsed Thermography. *Zhu*, *J*., +, *TIM May 2019 1373-1381* 

### Structural engineering computing

An Approach of Single-Crystal Defect Detection Using X-Ray Orientation Instrument. *Guan, S., +, TIM Oct. 2019 4122-4134* 

An Enhanced Time-Reversal Imaging Algorithm-Driven Sparse Linear Array for Progressive and Quantitative Monitoring of Cracks. *Wang, Q.*, +, *TIM Oct. 2019 3433-3445* 

High-Density Large-Scale TMR Sensor Array for Magnetic Field Imaging. Ye, C., +, TIM July 2019 2594-2601

Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks. Feng, B., +, TIM May 2019 1252-1260

# Substations

A Synchronized Current-Comparator Bridge for the Calibration of Analog Merging Units. *Djokic, B., +, TIM June 2019 1955-1960* 

An Improved Load Flow Method for MV Networks Based on LV Load Measurements and Estimations. Cataliotti, A., +, TIM Feb. 2019 430-438

Design of a Distributed UHF Sensor Array System for PD Detection and Location in Substation. Hu, Y., +, TIM June 2019 1844-1851

# Substrate integrated waveguides

Partially Filled Substrate Integrated Waveguide-Based Microwave Technique for Broadband Dielectric Characterization. *Tiwari, N.K.*, +, *TIM Aug. 2019 2907-2915* 

## Sugar

Concentration Measurement of Microliter-Volume Water-Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

#### **Supercapacitors**

Analytical Formulation for Power, Energy, and Efficiency Measurement of Ultracapacitor Using Fractional Calculus. Kumar, M.R., +, TIM Dec. 2019 4834-4844

#### Superconducting arrays

Voltage Standard Based on Dry-Cooled High-Temperature Superconductor Josephson Junctions. *Khorshev, S.K.*, +, *TIM June 2019 2113-2120* 

#### **Superconducting integrated circuits**

Behavior Modeling of the Amplifier Nonlinearity With the AC Josephson Voltage Standard. Zhou, K., +, TIM June 2019 1990-1995

#### Superconducting junction devices

An Optoelectronic Pulse Drive for Quantum Voltage Synthesizer. *Ireland, J.*, +, *TIM June 2019 2066-2071* 

Voltage Standard Based on Dry-Cooled High-Temperature Superconductor Josephson Junctions. *Khorshev, S.K.*, +, *TIM June 2019 2113-2120* 

#### **Supercontinuum generation**

Optical Transition-Edge Sensors: Dependence of System Detection Efficiency on Wavelength. *Hattori, K., +, TIM June 2019 2253-2259* 

#### Supersonic flow

Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061

#### Supervised learning

Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network. Wei, X., +, TIM Nov. 2019 4481-4492

### Support vector machines

A Novel Measurement Data Classification Algorithm Based on SVM for Tracking Closely Spaced Targets. Zhao, Z., +, TIM April 2019 1089-1100

A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings. Hong, K., +, TIM April 2019 1221-1229

An Inhaler Tracking System Based on Acoustic Analysis: Hardware and Software. Xie, W., +, TIM Nov. 2019 4472-4480

Characterization of S<sub>1</sub> and S<sub>2</sub> Heart Sounds Using Stacked Autoencoder and Convolutional Neural Network. *Mishra*, M., +, TIM Sept. 2019 3211-3220

Intelligent Diagnosis of V-Type Marine Diesel Engines Based on Multifeatures Extracted From Instantaneous Crankshaft Speed. *Zhang, M.*, +, *TIM March* 2019 722-740

On-Line Measurement of Dynamic Tilt Angle by Compensating Gyroscope Drift Error. Shi, L., +, TIM Sept. 2019 3244-3252

Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V., +, TIM Aug. 2019 2691-2704* 

Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. *Pan, D.*, +, *TIM Oct.* 2019 3576-3588

Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM. Wang, T., +, TIM March 2019 818-828

## Surface acoustic wave resonators

A Pigeonhole Principle-Based Method for Estimating the Resonant Frequency of SAWR Sensors. *Khoshakhlagh, M.*, +, *TIM Nov. 2019 4502-4509* 

### Surface acoustic wave sensors

A Pigeonhole Principle-Based Method for Estimating the Resonant Frequency of SAWR Sensors. *Khoshakhlagh, M.*, +, *TIM Nov. 2019 4502-4509* 

### Surface acoustic waves

An Enhanced Time-Reversal Imaging Algorithm-Driven Sparse Linear Array for Progressive and Quantitative Monitoring of Cracks. *Wang, Q.*, +, *TIM Oct. 2019 3433-3445* 

#### Surface cracks

Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures. Foudazi, A., +, TIM Feb. 2019 576-585

#### Surface emitting lasers

Self-Calibrated Multiharmonic CO<sub>2</sub> Sensor Using VCSEL for Urban *In Situ* Measurement. *Lan, L., +, TIM April 2019 1140-1147* 

## Surface mount technology

A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. de Morais Franca, M.B., +, TIM Feb. 2019 606-613

#### Surface plasmon resonance

Highly Dispersion Tailored Property of Novel Class of Multimode Surface Plasmon Resonance Biosensor Assisted by Teflon and Metamaterial Layers. *Raghuwanshi*, S.K., +, TIM Aug. 2019 2954-2963

Highly Sensitive SPR Biosensor Based on Graphene Oxide and Staphylococcal Protein A Co-Modified TFBG for Human IgG Detection. *Wang, Q.*, +, *TIM Sept. 2019 3350-3357* 

Magnetic Field Sensing Based on SPR Optical Fiber Sensor Interacting With Magnetic Fluid. *Zhou, X.*, +, *TIM Jan. 2019 234-239* 

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

Theoretical Analysis of Sensitivity Enhancement by Graphene Usage in Optical Fiber Surface Plasmon Resonance Sensors. *Melo, A.A.d.*, +, *TIM May 2019 1554-1560* 

#### Surface roughness

The Effect of Internal Pipe Wall Roughness on the Accuracy of Clamp-On Ultrasonic Flowmeters. Gu, X., +, TIM Jan. 2019 65-72

#### Surgery

Detection of Spikes With Defined Parameters in the ECoG Signal. *Kolodziej,* M., +, TIM April 2019 1045-1052

Power Calibration of Electrosurgical Units. Arencibia, R.V., +, TIM Dec. 2019 4798-4806

#### Surveillance

PAC Interaction Inspection Using Real-Time Contact Point Tracking. *Shen*, *Y*, +, *TIM Oct.* 2019 4051-4064

### **Suspensions (mechanical components)**

Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372

#### Switched capacitor networks

A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. de Morais Franca, M.B., +, TIM Feb. 2019 606-613

A Precision, Energy-Efficient, Oversampling, Noise-Shaping Differential SAR Capacitance-to-Digital Converter. *Alhoshany, A.*, +, *TIM Feb. 2019* 392-401

#### Switchgear

A Novel Method for Wide Range Electric Current Measurement in Gas-Insulated Switchgears With Shielded Magnetic Measurements. *Khawaja*, A.H., +, TIM Dec. 2019 4712-4722

#### Switchgear insulation

Partial Discharge Localization in Insulated Switchgears by Eigenfunction Expansion Method. D'Antona, G., +, TIM May 2019 1294-1301

### Synchronization

A Fully Programmable White-Rabbit Node for the SKA Telescope PPS Distribution System. *Jimenez-Lopez, M.*, +, *TIM Feb. 2019 632-641* 

A Method for Remote Estimation of Wattmeter's Adjustment Gain. *Nakutis*, Z., +, *TIM March* 2019 713-721

A New Vibration Testing Platform for Electronic Current Transformers. *Li*, *Z.*, +, *TIM March* 2019 704-712

A Synchronized Current-Comparator Bridge for the Calibration of Analog Merging Units. *Djokic, B., +, TIM June 2019 1955-1960* 

Asynchronous Optical Sampling for Laser-Based Vector Network Analysis on Coplanar Waveguides. Struszewski, P., +, TIM June 2019 2295-2302

Compensation of Systematic Measurement Errors in a PMU-Based Monitoring System for Electric Distribution Grids. *Pegoraro, P.A.*, +, *TIM Oct.* 

Design of Multichannel and Multihop Low-Power Wide-Area Network for Aircraft Vibration Monitoring. *Gao*, S., +, *TIM Dec*. 2019 4887-4895

Distortion Characterization of Exponential Signal Reconstructed by Low-Chirp Signal. *Carni, D.L.*, +, *TIM April 2019 980-986* 

Measurement of the Absolute Phase Error of Digitizers. *Crotti*, G., +, TIM June 2019 1724-1731

Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling. *Kitzig, J.*, +, *TIM April 2019 1014-1025* 

Rail-to-Rail Timer-Based Demodulator for AM Sensor Signals. *Reverter, F., TIM Jan. 2019 306-308* 

Synchronization Uncertainty Versus Power Efficiency in LoRaWAN Networks. Rizzi, M., +, TIM April 2019 1101-1111

Uncertainty Analysis in Time Distribution Mechanisms for OMS Smart Meters: The Last-Mile Time Synchronization Issue. *Rinaldi, S.*, +, *TIM March* 2019 693-703

#### **Synchronous generators**

A Joint Filter Approach for Reliable Power System State Estimation. Yu, Y., +, TIM Jan. 2019 87-94

#### Synchronous motors

Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning. *Kao, I., +, TIM Feb. 2019 310-324* 

Resolver-To-Digital Conversion Based on Acceleration-Compensated Angle Tracking Observer. Wang, F., +, TIM Oct. 2019 3494-3502

#### Synthetic aperture radar

A SAR-Based Measurement Method for Passive-Tag Positioning With a Flying UHF-RFID Reader. *Buffi*, A., +, *TIM March 2019 845-853* 

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. Horst, M.J., +, TIM Nov. 2019 4400-4411

Effect of Instrument Frequency Uncertainty on Wideband Microwave Synthetic Aperture Radar Images. Horst, M.J., +, TIM Jan. 2019 151-159

Fast Fourier-Based Implementation of Synthetic Aperture Radar Algorithm for Multistatic Imaging System. Abbasi, M., +, TIM Sept. 2019 3339-3349

Nondestructive Evaluation of Microwave-Penetrable Pipes by Synthetic Aperture Imaging Enhanced by Full-Wave Field Propagation Model. *Laviada*, *J.*, +, *TIM April 2019 1112-1119* 

#### System-on-chip

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. Horst, M.J., +, TIM Nov. 2019 4400-4411

Т

#### Table lookup

Chaos-Based Bitwise Dynamical Pseudorandom Number Generator On FPGA. *Garcia-Bosque*, M., +, TIM Jan. 2019 291-293

### Target tracking

A Novel Global Localization Approach Based on Structural Unit Encoding and Multiple Hypothesis Tracking. *Gao, H.*, +, *TIM Nov. 2019 4427-4442* 

A Novel Measurement Data Classification Algorithm Based on SVM for Tracking Closely Spaced Targets. Zhao, Z., +, TIM April 2019 1089-1100

# **Telecommunication computing**

Automatic Generation of Synthetic LiDAR Point Clouds for 3-D Data Analysis. Wang, F., +, TIM July 2019 2671-2673

Using the Cloud to Improve Sensor Availability and Reliability in Remote Monitoring. Ooi, B.Y., +, TIM May 2019 1522-1532

## Telecommunication network reliability

Using the Cloud to Improve Sensor Availability and Reliability in Remote Monitoring. Ooi, B.Y., +, TIM May 2019 1522-1532

#### Telecommunication network topology

An Efficient and Accurate Link Latency Monitoring Method for Low-Latency Software-Defined Networks. Liao, L., +, TIM Feb. 2019 377-391

Measurement System for Millimeter-Wave Antennas With Distributed External Local Oscillators and Mixers. Kang, N., +, TIM June 2019 1967-1972

# Telecommunication power management

Effects of Real Instrument on Performance of an Energy Detection-Based Spectrum Sensing Method. *Capriglione, D.*, +, *TIM May 2019 1302-1312* 

## **Telecommunication scheduling**

Design of Multichannel and Multihop Low-Power Wide-Area Network for Aircraft Vibration Monitoring. *Gao*, S., +, *TIM Dec*. 2019 4887-4895

### **Telecommunication traffic**

An Efficient and Accurate Link Latency Monitoring Method for Low-Latency Software-Defined Networks. Liao, L., +, TIM Feb. 2019 377-391

#### Telemedicine

Denoising ECG Signal by CSTFM Algorithm: Monitoring During Motorbike and Car Races. *Galli, A., +, TIM July 2019 2433-2441* 

Finger Displacement Sensing: FEM Simulation and Model Prediction of a Three-Layer Electrode Design. *Hu*, *N*., +, *TIM May 2019 1432-1440* 

## **Temperature**

Power Calibration of Electrosurgical Units. Arencibia, R.V., +, TIM Dec. 2019 4798-4806

#### **Temperature control**

Reference Ultralow DC Current Source Between 1 fA and 100 pA at TÜB - TAK UME. Erkan, O., +, TIM June 2019 2201-2207

#### **Temperature distribution**

Image-Based Flame Detection and Combustion Analysis for Blast Furnace Raceway. Zhang, R., +, TIM April 2019 1120-1131

Measurements of Parameters of the Thermal Model of the IGBT Module. *Gorecki, K.*, +, *TIM Dec. 2019 4864-4875* 

#### Temperature measurement

A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. *de Morais Franca, M.B.*, +, *TIM Feb. 2019 606-613* 

A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902

Active Microwave Thermography for Nondestructive Evaluation of Surface Cracks in Metal Structures. *Foudazi*, A., +, *TIM Feb. 2019 576-585* 

Effects of Mechanical Pressure on the Tangent Delta of MV Cable Joints. Ghaderi, A., +, TIM July 2019 2656-2658

Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *Aranzabal*, N., +, *TIM April 2019 1062-1070* 

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717* 

Temperature Measurement and Compensation Method of Blast Furnace Molten Iron Based on Infrared Computer Vision. Pan, D., +, TIM Oct. 2019 3576-3588

### Temperature sensors

A Multiprobe Heat Pulse Sensor for Soil Moisture Measurement Based on PCB Technology. *de Morais Franca, M.B.*, +, *TIM Feb. 2019 606-613* 

A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902

Autorange Thermal Sigma–Delta Converter for Incident Radiation Measurement. Vitorino, B.A.F., +, TIM March 2019 774-781

Comparative Study on Modeling Approaches of V-Shaped MEMS Temperature Sensors. Cohen, Y., +, TIM Oct. 2019 3766-3775

Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *Aranzabal*, N., +, *TIM April 2019 1062-1070* 

Output Power and Gain Monitoring in RF CMOS Class A Power Amplifiers by Thermal Imaging. *Perpina, X.*, +, *TIM Aug. 2019 2861-2870* 

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717* 

Truly Distributed Coaxial Cable Sensing Based on Random Inhomogeneities. Zhu, C., +, TIM Nov. 2019 4600-4607

## Tensors

A Novel Calibration Method for Magnetometer Array in Nonuniform Background Field. Mu, Y., +, TIM Oct. 2019 3677-3685

Compensation of Current Transformers' Nonlinearities by Tensor Linearization. Collin, A.J., +, TIM Oct. 2019 3841-3849

### Thermal analysis

Effects of Temperature on MV Cable Joints Tan Delta Measurements. *Ghaderi*, A., +, *TIM Oct.* 2019 3892-3898

PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. Chakraborty, M., +, TIM Jan. 2019 189-196

Thermal Force Uncertainty of Piezoelectric Dynamometer. Zhang, J., +, TIM Dec. 2019 4723-4735

#### Thermal barrier coatings

Thickness and Conductivity Measurement of Multilayered Electricity-Conducting Coating by Pulsed Eddy Current Technique: Experimental Investigation. Wang, Z., +, TIM Sept. 2019 3166-3172

#### Thermal conductivity

Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *Aranzabal*, N., +, *TIM April 2019 1062-1070* 

### Thermal force

Thermal Force Uncertainty of Piezoelectric Dynamometer. Zhang, J., +, TIM Dec. 2019 4723-4735

#### Thermal noise

FPGA Implementation of a Kalman-Based Motion Estimator for Levitated Nanoparticles. *Liao*, *J.*, +, *TIM July 2019 2374-2386* 

### Thermal resistance measurement

A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902

#### Thermal variables measurement

Determination of AC–DC Transfer Difference of Calculable Thermal Voltage Converters in 1–30-MHz Frequency Range. *Grzenik, M.*, +, *TIM June* 2019 2072-2077

#### **Thermistors**

Characterization of a Type-N Coaxial Microcalorimeter for Use as Microwave Power Standard at CENAM. *Botello-Perez, M.*, +, *TIM Feb. 2019* 558-565

#### Thermocouples

Low-Frequency AC–DC Differences of a Series–Parallel Circuit of Thermal Converters. *Amagai*, Y., +, *TIM June 2019 1907-1912* 

#### Thick film resistors

Aging in Commercial Thick- and Thin-Film Resistors: Survey and Uncertainty Analysis. *Mallett, T.C., TIM Nov. 2019 4190-4204* 

#### Thin film resistors

Aging in Commercial Thick- and Thin-Film Resistors: Survey and Uncertainty Analysis. Mallett, T.C., TIM Nov. 2019 4190-4204

Characterization of 1 k $\Psi$  Metal-Foil Standard Resistors and Continuing Drift-Rate Evaluation of 1  $\Omega$  and 10  $\Omega$  Standard Resistors. *Abe, T.*, +, *TIM June 2019 2078-2083* 

Establishment of High-Voltage AC-DC Voltage Transfer Standards in 1–100-kHz Range at NMIJ. Fujiki, H., +, TIM June 2019 1921-1926

### Thin film sensors

Highly Dispersion Tailored Property of Novel Class of Multimode Surface Plasmon Resonance Biosensor Assisted by Teflon and Metamaterial Layers. *Raghuwanshi*, S.K., +, TIM Aug. 2019 2954-2963

Highly Sensitive SPR Biosensor Based on Graphene Oxide and Staphylococcal Protein A Co-Modified TFBG for Human IgG Detection. Wang, Q., +, TIM Sept. 2019 3350-3357

Reflective SPR Sensor for Simultaneous Measurement of Nitrate Concentration and Temperature. Zhangd, Y.-N., +, TIM Nov. 2019 4566-4574

## Time division multiple access

Synchronization Uncertainty Versus Power Efficiency in LoRaWAN Networks. Rizzi, M., +, TIM April 2019 1101-1111

#### Time measurement

Depth Resolution Enhancement in Time-of-Flight Cameras Using Polarization State of the Reflected Light. *Dashpute*, A., +, *TIM Jan.* 2019 160-168 Design and Analysis of a Relaxation Oscillator-Based Interface Circuit for

LVDT. *Ganesan, H.*, +, *TIM May 2019 1261-1270*High-Precision Time-of-Flight Determination Algorithm for Ultrasonic Flow Measurement. *Sunol, F.*, +, *TIM Aug. 2019 2724-2732* 

Measurement Uncertainty of Precise Interpolating Time Counters. Szplet, R., +, TIM Nov. 2019 4348-4356

#### Time series

Filtering for Drift Data of a Laser Doppler Velocimeter Based on Metabolic Time-Series-Grey Model. Wang, Q., +, TIM July 2019 2552-2559

Gas-Liquid Flow Pattern Analysis Based on Graph Connectivity and Graph-Variate Dynamic Connectivity of ERT. *Tan, C.*, +, *TIM May 2019* 1590-1601

Railway Point Machine Prognostics Based on Feature Fusion and Health State Assessment. *Atamuradov, V.*, +, *TIM Aug. 2019 2691-2704* 

## Time-digital conversion

A 2.3-ps RMS Resolution Time-to-Digital Converter Implemented in a Low-Cost Cyclone V FPGA. Sui, T., +, TIM Oct. 2019 3647-3660

Measurement Uncertainty of Precise Interpolating Time Counters. Szplet, R., +, TIM Nov. 2019 4348-4356

Recent Developments and Challenges in FPGA-Based Time-to-Digital Converters. *Machado, R.*, +, *TIM Nov. 2019 4205-4221* 

# Time-domain analysis

Broken Rotor Bar Detection in Induction Motors Based on Air-Gap Rotational Magnetic Field Measurement. *Soleimani, Y., +, TIM Aug. 2019* 2916-2925

Direct E-Field Measurement and Imaging of Oscillations Within Power Amplifiers. *Urbonas, J.*, +, *TIM Aug. 2019 2971-2978* 

Doppler Distortion Removal in Wayside Circular Microphone Array Signals. Ouyang, K., +, TIM May 2019 1238-1251

Quantitative Detection of Interfacial Air Gap in Insulation Equipment Based on Terahertz Wave Contrast Method. *Zhang*, *Z.*, +, *TIM Dec. 2019 4896-4905* 

Time-Domain Gating Applied to the Quantitative Evaluation of Soft Defects in Embedded Electric Cables. *Loete, F., TIM Nov. 2019 4368-4375* 

#### Time-domain reflectometry

Low Frequency Model-Based Identification of Soft Impedance Faults in Cables. Cozza, A., TIM Oct. 2019 3524-3535

## Time-frequency analysis

Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753

Behavior Modeling of the Amplifier Nonlinearity With the AC Josephson Voltage Standard. Zhou, K., +, TIM June 2019 1990-1995

Fast Nonlinear Chirplet Dictionary-Based Sparse Decomposition for Rotating Machinery Fault Diagnosis Under Nonstationary Conditions. *Yang, B.*, +, *TIM Dec. 2019 4736-4745* 

Time-Domain Gating Applied to the Quantitative Evaluation of Soft Defects in Embedded Electric Cables. *Loete, F., TIM Nov. 2019 4368-4375* 

Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019 2819-2829* 

Transient Feature Extraction Based on Time–Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

#### Time-of-arrival estimation

A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh, S.*, +, *TIM March* 2019 646-655

TOA Estimation of Chirp Signal in Dense Multipath Environment for Low-Cost Acoustic Ranging. Zhang, L., +, TIM Feb. 2019 355-367

## Timing jitter

Measurement Uncertainty of Precise Interpolating Time Counters. Szplet, R., +, TIM Nov. 2019 4348-4356

## Tin

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha*, T., +, TIM March 2019 903-912

## Tissue engineering

Measuring the Maximum Power of an *ex vivo* Engineered Muscle Tissue With Isovelocity Shortening Technique. *Pisu*, S., +, *TIM July 2019 2404-2411* 

### Titanium compounds

Noise Analysis-Resonant Frequency-Based Combined Approach for Concomitant Detection of Unknown Vapor Type and Concentration. *Acharyya*, D., +, TIM Aug. 2019 3004-3011

#### **Tomography**

3-D Hemorrhage Imaging by Cambered Magnetic Induction Tomography. *Xiao*, Z., +, *TIM July 2019 2460-2468* 

Development of a Novel Linear ERT Sensor to Measure Surface Deposits. Ren, Z., +, TIM March 2019 754-761

Enhancing Resolution of Electrical Capacitive Sensors for Multiphase Flows by Fine-Stepped Electronic Scanning of Synthetic Electrodes. *Zeeshan, Z.*, +, *TIM Feb. 2019 462-473* 

Practical Current Distribution Measurement Systems for Lead Cells. *Harrison, H.T.*, +, *TIM Sept. 2019 3151-3165* 

### Torque control

Design of a Novel Elastic Torque Sensor for Hand Injuries Rehabilitation Based on Bowden Cable. Zhang, F, +, TIM Sept. 2019 3184-3192

## Torque measurement

Design of a Novel Elastic Torque Sensor for Hand Injuries Rehabilitation Based on Bowden Cable. *Zhang, F.*, +, *TIM Sept. 2019 3184-3192* 

Optimization Procedure for the Determination of Faraday's Voltage in UME Kibble Balance (July 2018). *Ahmedov, H.*, +, *TIM June 2019 2172-2175* 

#### **Torsion**

Instantaneous Rotation Speed Measurement System Based on Variable Reluctance Sensors for Torsional Vibration Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2363-2373* 

#### Toxicology

Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501

#### Tracking

ADMOST: UAV Flight Data Anomaly Detection and Mitigation via Online Subspace Tracking. He, Y., +, TIM April 2019 1035-1044

Electromagnetic Tracking Using Modular, Tiled Field Generators. *Jaeger, H.A.*, +, *TIM Dec. 2019 4845-4852* 

## Trajectory

Measuring the Local and Global Variabilities in Body Sway by Nonlinear Poincaré Technology. *Zhang, S.*, +, *TIM Dec. 2019 4817-4824* 

#### Trajectory control

A SAR-Based Measurement Method for Passive-Tag Positioning With a Flying UHF-RFID Reader. *Buffi*, A., +, *TIM March 2019 845-853* 

#### Transducers

A New Autocalibration Procedure in Intelligent Temperature Transducer. Miczulski, W., +, TIM March 2019 895-902

Calibration of Voltage and Current Transducers for DC Railway Systems. Crotti, G., +, TIM Oct. 2019 3850-3860

Characterization of DC Current Sensors With AC Distortion for Railway Applications. van den Brom, H.E., +, TIM June 2019 2084-2090

Compensation of Current Transformers' Nonlinearities by Tensor Linearization. Collin, A.J., +, TIM Oct. 2019 3841-3849

Design of Cable Parallel Air-Core Coil Sensor to Reduce Motion-Induced Noise in Helicopter Transient Electromagnetic System. *Liu*, *F*., +, *TIM Feb.* 2019 525-532

Method for the Absolute Calibration of Direct-Current Current Transducers. Zhao, J., +, TIM June 2019 1961-1966

Practical Current Distribution Measurement Systems for Lead Cells. *Harrison, H.T.*, +, *TIM Sept. 2019 3151-3165* 

### Transfer standards

Characterization of a Type-N Coaxial Microcalorimeter for Use as Microwave Power Standard at CENAM. *Botello-Perez, M.*, +, *TIM Feb. 2019* 558-565

Establishment of High-Voltage AC-DC Voltage Transfer Standards in 1–100-kHz Range at NMIJ. *Fujiki*, *H.*, +, *TIM June 2019 1921-1926* 

## Transformer oil

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana, M.*, +, *TIM Dec.* 2019 4853-4863

Kerr Electro-Optic Sensor for Electric Field in Large-Scale Oil–Pressboard Insulation Structure. *Gao, C.*, +, *TIM Oct. 2019 3626-3634* 

Mechanical Fault Diagnostics of Power Transformer On-Load Tap Changers Using Dynamic Time Warping. *Yang, R.*, +, *TIM Sept. 2019 3119-3127* 

#### Transformer windings

A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings. Hong, K., +, TIM April 2019 1221-1229

Application of FRA to Improve the Design and Maintenance of Wireless Power Transfer Systems. Kim, D., +, TIM Nov. 2019 4313-4325

Detection of HV Winding Radial Deformation and PD in Power Transformer Using Stepped-Frequency Hyperboloid Method. *Tabarsa, H.*, +, *TIM Aug.* 2019 2934-2942

Detection of Winding Faults Based on a Characterization of the Nonlinear Dynamics of Transformers. *Zheng*, *J.*, +, *TIM Jan. 2019 206-214* 

#### Transformers

Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM. Wang, T., +, TIM March 2019 818-828

### **Transforms**

A New Method for Calibrating Nonlinear Coefficients of PIGA on Linear Vibrator. Ren, S., +, TIM Aug. 2019 2898-2906

Image Fusion Using Adjustable Non-subsampled Shearlet Transform. Vishwakarma, A., +, TIM Sept. 2019 3367-3378 Medical Image Fusion With Parameter-Adaptive Pulse Coupled Neural Network in Nonsubsampled Shearlet Transform Domain. *Yin, M.*, +, *TIM Jan.* 2019 49-64

Multimodal Sensor Medical Image Fusion Based on Local Difference in Non-Subsampled Domain. Kong, W., +, TIM April 2019 938-951

Warped Variational Mode Decomposition With Application to Vibration Signals of Varying-Speed Rotating Machineries. *Chen, S., +, TIM Aug. 2019* 2755-2767

#### Transient analysis

Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

#### Transient response

Throughput Analysis for Virtual MIMO WSNs Over Measured MIMO Channels. Dey, I., +, TIM Jan. 2019 297-299

#### Transistor-transistor logic

Noise Synthesis Technique in Time Domain for Metrology Application. *Gu*, *D.*, +, *TIM June 2019 2288-2294* 

### Transmission electron microscopy

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha, T.*, +, *TIM March 2019 903-912* 

## Transmission line measurements

Wideband Dielectric Characterization of 3-D Printable Triethylene Glycol Dimethacrylate Ester Plastic. *Sharma*, K., +, *TIM Nov.* 2019 4419-4426

#### **Transmitters**

High-Accuracy Localization and Calibration for 5-DoF Indoor Magnetic Positioning Systems. *Hehn, M., +, TIM Oct. 2019 4135-4145* 

#### Transmitting antennas

Throughput Analysis for Virtual MIMO WSNs Over Measured MIMO Channels. *Dev, I.*, +, *TIM Jan. 2019 297-299* 

#### Transponders

A Blind Calibration Method for Phase-of-Arrival-Based Localization of Passive UHF RFID Transponders. Scherhaufl, M., +, TIM Jan. 2019 261-268

### Trees (mathematics)

Design and Implementation of a Tree-Based Blind Modulation Classification Algorithm for Multiple-Antenna Systems. *Gupta, R.*, +, *TIM Aug.* 2019 3020-3031

### **Tunneling magnetoresistance**

A Linear Direct-Digital Converter for Sinusoidal Encoders. *Bhaskarrao*, N.K., +, TIM July 2019 2570-2578

High-Density Large-Scale TMR Sensor Array for Magnetic Field Imaging. Ye, C., +, TIM July 2019 2594-2601

#### Tunnel

Design of Magnetic Resonance Sounding Antenna and Matching Circuit for the Risk Detection of Tunnel Water-Induced Disasters. *Yi*, *X.*, +, *TIM Dec.* 2019 4945-4953

# Two-phase flow

A New Contactless Bubble/Slug Velocity Measurement Method of Gas—Liquid Two-Phase Flow in Small Channels. *Huang, J.*, +, *TIM Sept. 2019* 3253-3267

A Novel Sensitivity Matrix Construction Method for Ultrasonic Tomography Based on Simulation Studies. *Li*, *N.*, +, *TIM Oct. 2019 3548-3562* 

Gas-Liquid Flow Pattern Analysis Based on Graph Connectivity and Graph-Variate Dynamic Connectivity of ERT. *Tan, C.*, +, *TIM May 2019* 

IR Transceiver Irradiation Characteristics on Bubble/Slug Flow Regimes in Conventional and Minichannels. *Mithran, N.*, +, *TIM Jan. 2019 240-249* 

Measurement of Oil-Water Interface Characteristics in Horizontal Pipe Using a Conductance Parallel-Wire Array Probe. Zhai, L., +, TIM Sept. 2019 3232-3243

Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061

### Two-photon spectra

Double-Resonance Two-Photon Spectroscopy of Hydrogen Molecular Ions for Improved Determination of Fundamental Constants. *Constantin, F.L., TIM June 2019 2151-2159* 

#### Two-port networks

A Measurement of Noise Wave Correlation Matrix Using Noise Power Ratios. Lee, D., +, TIM July 2019 2579-2593

Concentration Measurement of Microliter-Volume Water–Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

U

#### **UHF** antennas

Design of a Distributed UHF Sensor Array System for PD Detection and Location in Substation. *Hu*, *Y*, +, *TIM June 2019 1844-1851* 

Detection of HV Winding Radial Deformation and PD in Power Transformer Using Stepped-Frequency Hyperboloid Method. *Tabarsa*, H., +, *TIM Aug.* 2019 2934-2942

Uncertainty Analysis of Far-Field Gain Measurement of DRGH Using the Single-Antenna Method and Amplitude Center Distance. *Matsukawa, S.*, +, *TIM June 2019 1756-1764* 

Wideband Substrate-Integrated Cavity-Backed Elliptical Slot for Microwave Synthetic Aperture Imaging. Xingyu, X., +, TIM July 2019 2665-2667

#### **UHF** detectors

A Novel PD Detection Technique for Use in GIS Based on a Combination of UHF and Optical Sensors. *Han, X., +, TIM Aug. 2019 2890-2897* 

Concentration Measurement of Microliter-Volume Water–Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-2634* 

Design of a Distributed UHF Sensor Array System for PD Detection and Location in Substation. Hu, Y., +, TIM June 2019 1844-1851

#### **UHF** measurement

A Novel PD Detection Technique for Use in GIS Based on a Combination of UHF and Optical Sensors. *Han, X., +, TIM Aug. 2019 2890-2897* 

Concentration Measurement of Microliter-Volume Water-Glucose Solutions Using *Q* Factor of Microwave Sensors. *Juan, C.G.*, +, *TIM July 2019 2621-*

Uncertainty Analysis of Far-Field Gain Measurement of DRGH Using the Single-Antenna Method and Amplitude Center Distance. *Matsukawa, S.*, +, *TIM June 2019 1756-1764* 

# UHF radio propagation

Passive UHF-RFID Localization Based on the Similarity Measurement of Virtual Reference Tags. Mo, L., +, TIM Aug. 2019 2926-2933

### Ultra wideband communication

Human Body Shadowing Effect on UWB-Based Ranging System for Pedestrian Tracking. *Tian*, Q., +, *TIM Oct.* 2019 4028-4037

TOA Estimation of Chirp Signal in Dense Multipath Environment for Low-Cost Acoustic Ranging. Zhang, L., +, TIM Feb. 2019 355-367

## Ultrasonic devices

A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh, S.*, +, *TIM March* 2019 646-655

### Ultrasonic imaging

A Novel Sensitivity Matrix Construction Method for Ultrasonic Tomography Based on Simulation Studies. *Li*, *N.*, +, *TIM Oct.* 2019 3548-3562

Fiber Optic Sensors Based on Photoacoustic Effect for Rebar Corrosion Measurement. Du, C., +, TIM Nov. 2019 4559-4565

### Ultrasonic materials testing

Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks. *Feng, B., +, TIM May 2019 1252-1260* 

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S.*, +, *TIM July 2019 2335-2345* 

#### Ultrasonic measurement

A Robust Algorithm for Classification and Rejection of NLOS Signals in Narrowband Ultrasonic Localization Systems. *Haigh, S.*, +, *TIM March* 2019 646-655

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S., +, TIM July 2019 2335-2345* 

The Effect of Internal Pipe Wall Roughness on the Accuracy of Clamp-On Ultrasonic Flowmeters. *Gu, X.*, +, *TIM Jan. 2019 65-72* 

Ultrasonic Distance Measurement Method With Crosstalk Rejection at High Measurement Rate. Shin, S., +, TIM April 2019 972-979

#### Ultrasonic transducers

A Buffered Single-Supply Charge Amplifier for High-Impedance Piezoelectric Sensors. *Giannelli*, P., +, TIM Feb. 2019 368-376

An Extended Kalman Filter for Fetal Heart Location Estimation During Doppler-Based Heart Rate Monitoring. *Hamelmann*, P., +, TIM Sept. 2019 3221-3231

An Indoor Ultrasonic System for Autonomous 3-D Positioning. *Carotenuto*, R., +, TIM July 2019 2507-2518

High-Precision Time-of-Flight Determination Algorithm for Ultrasonic Flow Measurement. Sunol, F., +, TIM Aug. 2019 2724-2732

Practical Aspects of Ultrasonic Rotary Encoder—Probe Placing, Real-Time Operation, and Automotive Bench Test. *Oho, S.*, +, *TIM July 2019 2335-2345* 

Recovering of Corrupted Ultrasonic Waves, for Determination of TOF Using the Zero-Crossing Detection Technique. Fabiano dos Santos, J.C., +, TIM Nov. 2019 4234-4241

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717* 

Ultrasonic Distance Measurement Method With Crosstalk Rejection at High Measurement Rate. Shin, S., +, TIM April 2019 972-979

### Ultrasonic variables measurement

High-Precision Time-of-Flight Determination Algorithm for Ultrasonic Flow Measurement. Sunol, F., +, TIM Aug. 2019 2724-2732

#### Ultraviolet detectors

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717* 

### Uncertain systems

State-Estimator-Integrated Robust Adaptive Tracking Control for Flexible Air-Breathing Hypersonic Vehicle With Noisy Measurements. *Tao*, *X.*, +, *TIM Nov. 2019 4285-4299* 

#### Uncertainty

Thermal Force Uncertainty of Piezoelectric Dynamometer. Zhang, J., +, TIM Dec. 2019 4723-4735

## Underwater acoustic propagation

Self-Sustaining Acoustic Sensor With Programmable Pattern Recognition for Underwater Monitoring. *Mayer, P., +, TIM July 2019 2346-2355* 

#### **Units (measurement)**

A Robust Pedestrian Dead Reckoning System Using Low-Cost Magnetic and Inertial Sensors. Shi, L., +, TIM Aug. 2019 2996-3003

Measurement of Submilligram Masses Using Electrostatic Force. *Shaw, G.A., +, TIM June 2019 2015-2020* 

# Unsupervised learning

Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network. Wei, X., +, TIM Nov. 2019 4481-4492

Transient Feature Extraction Based on Time-Frequency Manifold Image Synthesis for Machinery Fault Diagnosis. *Ding, X.*, +, *TIM Nov. 2019* 4242-4252

## User interfaces

Novel Instrument for Temperature Measurements in Borehole Heat Exchangers. *Aranzabal*, N., +, *TIM April 2019 1062-1070* 

V

#### Vacancies (crystal)

Electron Paramagnetic Resonance Study on <sup>28</sup>Si Single Crystal for the Future Realization of the Kilogram. *Mizushima*, S., +, *TIM June 2019 1879-1886* 

## Variational techniques

Warped Variational Mode Decomposition With Application to Vibration Signals of Varying-Speed Rotating Machineries. *Chen, S.*, +, *TIM Aug. 2019* 2755-2767

#### Vectors

A Differential Accelerometer System: Offline Calibration and State Estimation. Belkhouche, F., TIM Sept. 2019 3109-3118

In-Motion Coarse Alignment Based on the Vector Observation for SINS. Zhang, T., +, TIM Oct. 2019 3740-3750 Medical Hyperspectral Image Classification Based on End-to-End Fusion Deep Neural Network. Wei, X., +, TIM Nov. 2019 4481-4492

New Measurement Algorithm for Supraharmonics Based on Multiple Measurement Vectors Model and Orthogonal Matching Pursuit. *Zhuang, S.*, +, *TIM June 2019 1671-1679* 

#### Vegetable oils

Condition Assessment of Aged Ester-Based Nanofluid Through Physicochemical and Spectroscopic Measurement. *Maharana, M.*, +, *TIM Dec.* 2019 4853-4863

#### Vehicle dynamics

Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372

#### Velocity measurement

- A New Contactless Bubble/Slug Velocity Measurement Method of Gas-Liquid Two-Phase Flow in Small Channels. *Huang, J.*, +, *TIM Sept. 2019* 3253-3267
- A Robust Pedestrian Dead Reckoning System Using Low-Cost Magnetic and Inertial Sensors. Shi, L., +, TIM Aug. 2019 2996-3003
- Height Measurement in Seamless Indoor/Outdoor Infrastructure-Free Navigation. Rantanen, J., +, TIM April 2019 1199-1209
- Synchronous Adaptive Resolver-to-Digital Converter for FPGA-Based High-Performance Control Loops. *Sabatini*, V., +, *TIM Oct.* 2019 3972-3982
- The Effect of Internal Pipe Wall Roughness on the Accuracy of Clamp-On Ultrasonic Flowmeters. Gu, X., +, TIM Jan. 2019 65-72
- Torsional Balance for Simultaneous Evaluation of Thrust Force and Flow Velocity of Electrostatically Induced Ionic Wind. *Lee, J.R.*, +, *TIM Nov.* 2019 4518-4525
- Using Blockchains to Implement Distributed Measuring Systems. *Melo*, W.S., +, TIM May 2019 1503-1514
- Velocity Estimation From a Single Linear Motion Blurred Image Using Discrete Cosine Transform. Cortes-Osorio, J.A., +, TIM Oct. 2019 4038-4050

### Vibration control

Online Fault Detection of Rear Stroke Suspension Sensor in Motorcycle. Capriglione, D., +, TIM May 2019 1362-1372

## Vibration measurement

- A Low-Threshold Bistable Device for Energy Scavenging From Wideband Mechanical Vibrations. *Ando, B., +, TIM Jan. 2019 280-290*
- A New Method for Calibrating Nonlinear Coefficients of PIGA on Linear Vibrator. Ren, S., +, TIM Aug. 2019 2898-2906
- Impulse Exciter of Rotating Blades With an Increased Excitation Force. Prochazka, P., TIM Jan. 2019 300-302
- Instantaneous Rotation Speed Measurement System Based on Variable Reluctance Sensors for Torsional Vibration Monitoring. *Addabbo*, *T.*, +, *TIM July 2019 2363-2373*
- Laser Beam Position-Dependent PSD-Based Calibrated Self-Vibration Compensated Noncontact Vibration Measurement System. Das, S., +, TIM Sept. 2019 3308-3320
- Modeling a Nonlinear Harvester for Low Energy Vibrations. Ando, B., +, TIM May 2019 1619-1627
- Simultaneous Estimation of Moving-Vibration Parameters by Sliding Goertzel Algorithm in PLL Technique. Singh, K.M., TIM Feb. 2019 334-343
- Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors. *Reda*, K., +, *TIM May 2019 1467-1476*

## Vibrational signal processing

- Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753
- Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233*
- Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461
- Fast Nonlinear Chirplet Dictionary-Based Sparse Decomposition for Rotating Machinery Fault Diagnosis Under Nonstationary Conditions. *Yang, B.*, +, *TIM Dec. 2019 4736-4745*
- Fault Detection for Rolling-Element Bearings Using Multivariate Statistical Process Control Methods. *Jin, X.*, +, *TIM Sept. 2019 3128-3136*

Tacholess Speed Estimation in Order Tracking: A Review With Application to Rotating Machine Fault Diagnosis. *Lu*, *S.*, +, *TIM July 2019 2315-2332* Warped Variational Mode Decomposition With Application to Vibration Signals of Varying-Speed Rotating Machineries. *Chen*, *S.*, +, *TIM Aug. 2019 2755-2767*

### Vibrations

- A New Vibration Testing Platform for Electronic Current Transformers. *Li*, *Z*, +, *TIM March* 2019 704-712
- A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings. *Hong, K.*, +, *TIM April 2019 1221-1229*
- Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753
- Application of Spectral Kurtosis and Improved Extreme Learning Machine for Bearing Fault Classification. *Udmale, S.S.*, +, *TIM Nov. 2019 4222-4233*
- Design of Cable Parallel Air-Core Coil Sensor to Reduce Motion-Induced Noise in Helicopter Transient Electromagnetic System. *Liu, F., +, TIM Feb.* 2019 525-532
- Design of Multichannel and Multihop Low-Power Wide-Area Network for Aircraft Vibration Monitoring. *Gao*, S., +, *TIM Dec. 2019 4887-4895*
- Detection of Winding Faults Based on a Characterization of the Nonlinear Dynamics of Transformers. *Zheng, J., +, TIM Jan. 2019 206-214*
- Disturbance Observer-Based Control of Tip-Tilt Mirror for Mitigating Telescope Vibrations. *Tang, T.*, +, *TIM Aug. 2019 2785-2791*
- Early Fault Diagnosis and Classification of Ball Bearing Using Enhanced Kurtogram and Gaussian Mixture Model. *Hong, Y.*, +, *TIM Dec. 2019* 4746-4755
- Impulse Exciter of Rotating Blades With an Increased Excitation Force. Prochazka, P., TIM Jan. 2019 300-302
- Instantaneous Rotation Speed Measurement System Based on Variable Reluctance Sensors for Torsional Vibration Monitoring. *Addabbo, T.*, +, *TIM July 2019 2363-2373*
- Time-Frequency Squeezing and Generalized Demodulation Combined for Variable Speed Bearing Fault Diagnosis. *Huang, W.*, +, *TIM Aug. 2019 2819-2829*
- Transformer Health Management Based on Self-Powered RFID Sensor and Multiple Kernel RVM. Wang, T., +, TIM March 2019 818-828
- Vibration Measurement of an Unbalanced Metallic Shaft Using Electrostatic Sensors. *Reda, K.*, +, *TIM May 2019 1467-1476*

# Video signal processing

- The Influence of Uncertainty Contributions on Deep Learning Architectures in Vision-Based Evaluation Systems. *Callari*, *G.*, +, *TIM July 2019 2425-2432*
- Video-Based Heart Rate Measurement: Recent Advances and Future Prospects. Chen, X., +, TIM Oct. 2019 3600-3615

### Virtual reality

Electromagnetic Tracking Using Modular, Tiled Field Generators. *Jaeger, H.A.*, +, *TIM Dec. 2019 4845-4852* 

### Viscometers

3-D Printed Integrated and Automated Electro-Microfluidic Viscometer for Biochemical Applications. S. B., P., +, TIM July 2019 2648-2655

### Visible spectra

Magnetic Field Sensing Based on SPR Optical Fiber Sensor Interacting With Magnetic Fluid. *Zhou, X., +, TIM Jan. 2019 234-239* 

#### Vison sensors

OPTICS-Based Template Matching for Vision Sensor-Based Shoe Detection in Human–Robot Coexisting Environments. *Paral, P.*, +, *TIM Nov. 2019* 4276-4284

### Visual databases

Effective and Efficient Blind Quality Evaluator for Contrast Distorted Images. Yue, G., +, TIM Aug. 2019 2733-2741

### Visual evoked potentials

A Single-Channel SSVEP-Based Instrument With Off-the-Shelf Components for Trainingless Brain-Computer Interfaces. *Angrisani, L.*, +, *TIM Oct. 2019 3616-3625* 

## Vivaldi antennas

Design of a Compact V-Band Transceiver and Antenna for Millimeter-Wave Imaging Systems. Horst, M.J., +, TIM Nov. 2019 4400-4411

#### **VLSI**

Fault Detection of VLSI Power Supply Network Based on Current Estimation From Surface Magnetic Field. Takahashi, D., +, TIM July 2019 2519-2530

#### Voltage dividers

- A Fundamental Step-Up Method for Standard Voltage Transformers Based on an Active Capacitive High-Voltage Divider. *Mohns, E., +, TIM June* 2019 2121-2128
- AC Voltage Measurements to 120 V With a Josephson Arbitrary Waveform Synthesizer and an Inductive Voltage Divider. *Georgakopoulos, D.*, +, *TIM June 2019 1935-1940*
- Calibration of the Absolute Linearity of Lock-In Amplifiers. *Corminboeuf, D., TIM June 2019 2060-2065*
- Effect of Step Response Measurement Arrangement on the Correction of Ultrahigh-Voltage Lightning Impulse Dividers. *Yan*, *W*., +, *TIM June 2019 1666-1670*
- Errors of Multiplying D/A Converters Used for Precise AC Voltage Division. Rybski, R., +, TIM June 2019 1821-1826
- Harmonic Power Standard of VTT MIKES. Lehtonen, T.A., TIM June 2019 2047-2052
- Self-Calibration and Verification of Phase Angle Errors of Two Voltage Dividers at High Frequencies. Shi, Z., +, TIM June 2019 2053-2059

#### Voltage measurement

- A New Phase Difference Measurement System With Differential AC/Single-Ended DC Switching for One TVC. *Yamada, T.*, +, *TIM June 2019* 2021-2026
- A Pigeonhole Principle-Based Method for Estimating the Resonant Frequency of SAWR Sensors. *Khoshakhlagh, M.*, +, *TIM Nov. 2019 4502-4509*
- AC Voltage Measurements to 120 V With a Josephson Arbitrary Waveform Synthesizer and an Inductive Voltage Divider. *Georgakopoulos*, D., +, TIM June 2019 1935-1940
- An Improved Load Flow Method for MV Networks Based on LV Load Measurements and Estimations. Cataliotti, A., +, TIM Feb. 2019 430-438
- Analysis of Correlation in the Intercomparison of DC Voltage Reference Standards. Sachica, M., +, TIM June 2019 2168-2171
- Behavior Modeling of the Amplifier Nonlinearity With the AC Josephson Voltage Standard. Zhou, K., +, TIM June 2019 1990-1995
- Calibration of Gigahertz Microwave Generator for the Programmable Josephson Voltage Standard at NRC. Gertsvolf, M., +, TIM June 2019 1901-1906
- Calibration of Voltage and Current Transducers for DC Railway Systems. Crotti, G., +, TIM Oct. 2019 3850-3860
- Compensation of Systematic Measurement Errors in a PMU-Based Monitoring System for Electric Distribution Grids. *Pegoraro, P.A.*, +, *TIM Oct.* 2019 3871-3882
- Determination of AC–DC Transfer Difference of Calculable Thermal Voltage Converters in 1–30-MHz Frequency Range. *Grzenik, M.*, +, *TIM June* 2019 2072-2077
- Determination of Frequency-Independent Component of AC–DC Transfer Difference of SUT Calculable AC Voltage Standards. *Grzenik, M.*, +, *TIM May 2019 1515-1521*
- Determination of Voltage Dependence in High-Voltage Standard Capacitors. Slomovitz, D., +, TIM June 2019 2136-2143
- Development of a Nonintrusive True-RMS AC Voltage Measurement Probe. Shenil, P.S., +, TIM Oct. 2019 3899-3906
- Effect of Step Response Measurement Arrangement on the Correction of Ultrahigh-Voltage Lightning Impulse Dividers. *Yan*, *W.*, +, *TIM June 2019* 1666-1670
- Establishment of High-Voltage AC-DC Voltage Transfer Standards in 1–100-kHz Range at NMIJ. Fujiki, H., +, TIM June 2019 1921-1926
- Guest Editors' Foreword Special Section on the 2018 IEEE International Workshop on Applied Measurements for Power Systems (AMPS 2018) Bologna, Italy, September 26–28, 2018. Ferrero, R., +, TIM Oct. 2019 3799-3800
- Harmonic Power Standard of VTT MIKES. Lehtonen, T.A., TIM June 2019 2047-2052

- Improved Sine-Fitting Algorithms for Measurements of Complex Ratio of AC Voltages by Asynchronous Sequential Sampling. *Augustyn, J.*, +, *TIM June 2019 1659-1665*
- Low-Frequency AC–DC Differences of a Series–Parallel Circuit of Thermal Converters. *Amagai*, Y., +, *TIM June 2019 1907-1912*
- Optimization Procedure for the Determination of Faraday's Voltage in UME Kibble Balance (July 2018). *Ahmedov, H.*, +, *TIM June 2019 2172-2175*
- Pantograph-to-OHL Arc: Conducted Effects in DC Railway Supply System. Crotti, G., +, TIM Oct. 2019 3861-3870
- PMMA-Coated Capacitive Type Soil Moisture Sensor: Design, Fabrication, and Testing. Chakraborty, M., +, TIM Jan. 2019 189-196
- Power Quality Measurement System With PMU Functionality Based on Interpolated Sampling. *Kitzig, J.*, +, *TIM April 2019 1014-1025*
- Self-Calibration and Verification of Phase Angle Errors of Two Voltage Dividers at High Frequencies. Shi, Z., +, TIM June 2019 2053-2059
- Uncertainty Bounds of Transmission Line Parameters Estimated From Synchronized Measurements. Asprou, M., +, TIM Aug. 2019 2808-2818
- Voltage Standard Based on Dry-Cooled High-Temperature Superconductor Josephson Junctions. *Khorshev, S.K.*, +, *TIM June 2019 2113-2120*

#### Voltammetry (chemical analysis)

- Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang, J.*, +, *TIM July 2019* 2387-2393
- Tea Quality Prediction by Sparse Modeling of Electronic Tongue Signals. Saha, P., +, TIM Sept. 2019 3046-3053

#### **Volterra equations**

Behavioral Representation of a Bridge Rectifier Using Simplified Volterra Models. Faifer, M., +, TIM May 2019 1611-1618

#### Volterra series

Behavior Modeling of the Amplifier Nonlinearity With the AC Josephson Voltage Standard. Zhou, K., +, TIM June 2019 1990-1995

### Voltmeters

- A New Phase Difference Measurement System With Differential AC/Single-Ended DC Switching for One TVC. *Yamada*, T., +, TIM June 2019 2021-2026
- Comparison of Two Methods for Phase Angle Measurement. Velychko, O., +, TIM June 2019 1740-1747

## Volume measurement

- Performance Analysis of the PMD Camboard Picoflexx Time-of-Flight Camera for Markerless Motion Capture Applications. *Pasinetti, S.*, +, *TIM Nov. 2019 4456-4471*
- Volume Measurement of a <sup>28</sup>Si-Enriched Sphere for a Determination of the Avogadro Constant at NMIJ. *Kuramoto*, *N.*, +, *TIM June 2019 1913-1920*

## $\mathbf{W}$

#### Wastewater treatment

- Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang, J.*, +, *TIM July 2019* 2387-2393
- Oxygen Uptake Rate Measurement Using Kalman Filter and PWM Control in Activated Sludge Systems. *Dos Santos Silva, F.J.*, +, *TIM Nov. 2019* 4493-4501

## Water

- Measurement of Oil–Water Interface Characteristics in Horizontal Pipe Using a Conductance Parallel-Wire Array Probe. Zhai, L., +, TIM Sept. 2019 3232-3243
- Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061

## Water pollution measurement

In Situ Measurement of Oil Slick Thickness. Saleh, M., +, TIM July 2019 2635-2647

#### Wattmeters

- A Method for Remote Estimation of Wattmeter's Adjustment Gain. *Nakutis*, Z., +, *TIM March* 2019 713-721
- A Sampling Wattmeter With Extended Frequency Range. Waltrip, B., +, TIM June 2019 2187-2194

#### Waveform generators

A Novel Method for Calibration of ADC Using JAWS. Sira, M., +, TIM June 2019 2091-2099

An Optoelectronic Pulse Drive for Quantum Voltage Synthesizer. *Ireland, J.*, +, *TIM June 2019 2066-2071* 

Characterization of PXI-Based Generators for Impedance Measurement Setups. *Miroslaw*, M., +, *TIM June 2019 1806-1813* 

Josephson Arbitrary Waveform Synthesizer as a Reference Standard for the Measurement of the Phase of Harmonics in Distorted Waveforms. *Georga-kopoulos*, D., +, TIM June 2019 1927-1934

Measurement of the Absolute Phase Error of Digitizers. Crotti, G., +, TIM June 2019 1724-1731

### Waveguide couplers

On-Wafer Coplanar Waveguide Standards for S-Parameter Measurements of Balanced Circuits Up to 40 GHz. *Pham, T.D.*, +, *TIM June 2019 2160-2167* 

#### Waveguides

NIST-Traceable Microwave Power Measurement in a Waveguide Calorimeter With Correlated Uncertainties. Gu, D., +, TIM June 2019 2280-2287

#### Wavelet neural nets

Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network. *Jin, Y., +, TIM April 2019 1026-1034* 

#### Wavelet transforms

A Multiview Discriminant Feature Fusion-Based Nonlinear Process Assessment and Diagnosis: Application to Medical Diagnosis. *Hazarika*, A., +, *TIM July 2019 2498-2506* 

A Robust Pulse Onset and Peak Detection Method for Automated PPG Signal Analysis System. *Vadrevu, S.*, +, *TIM March 2019 807-817* 

A Variational Mode Decomposition Approach for Degradation Assessment of Power Transformer Windings. *Hong, K.*, +, *TIM April 2019 1221-1229* 

Adaptively Estimating Rotation Speed From DC Motor Current Ripple for Order Tracking and Fault Diagnosis. Lu, S., +, TIM March 2019 741-753

Analysis of Permanent Magnet Synchronous Motor Fault Diagnosis Based on Learning. Kao, I., +, TIM Feb. 2019 310-324

Entropy-Based Local Irregularity Detection for High-Speed Railway Catenaries With Frequent Inspections. Wang, H., +, TIM Oct. 2019 3536-3547

Exposure Measurement and Fusion via Adaptive Multiscale Edge-Preserving Smoothing. Que, Y., +, TIM Dec. 2019 4663-4674

Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network. *Jin, Y., +, TIM April 2019 1026-1034* 

Pilots' Fatigue Status Recognition Using Deep Contractive Autoencoder Network. Wu, E.Q., +, TIM Oct. 2019 3907-3919

Relative Wavelet Entropy Complex Network for Improving EEG-Based Fatigue Driving Classification. *Gao*, Z., +, *TIM July 2019 2491-2497* 

Signal Analysis of Supersonic Vapor Condensation in Nozzle Sensor Using Distributed Transient Pressure Probes. Wang, C., +, TIM April 2019 1053-1061

Study on Characteristics Location of Pantograph—Catenary Contact Force Signal Based on Wavelet Transform. Zhang, J., +, TIM Feb. 2019 402-411

#### wear

Fault Diagnosis of Hydraulic Seal Wear and Internal Leakage Using Wavelets and Wavelet Neural Network. *Jin, Y., +, TIM April 2019 1026-1034* 

### Wearable sensors

Inertial Sensor-Based Respiration Analysis. Karacocuk, G., +, TIM Nov. 2019 4268-4275

## Weather forecasting

Field Study of LWC and MVD Using the Droplet Imaging Instrument. Rydblom, S., +, TIM Feb. 2019 614-622

### Weibull distribution

Effective and Efficient Photo-Based PM2.5 Concentration Estimation. *Yue*, G., +, TIM Oct. 2019 3962-3971

#### Weighing

Measurement of Submilligram Masses Using Electrostatic Force. *Shaw, G.A., +, TIM June 2019 2015-2020* 

#### Wheels

On-Site Reliable Wheel Size Measurement Based on Multisensor Data Fusion. Pan, X., +, TIM Nov. 2019 4575-4589

#### Wide area measurements

Compact Distributed Digitizers With Metrological Precision. *Houtzager, E.*, +, *TIM June 2019 1653-1658* 

#### Wide area networks

Design of Multichannel and Multihop Low-Power Wide-Area Network for Aircraft Vibration Monitoring. *Gao*, S., +, *TIM Dec*. 2019 4887-4895

Synchronization Uncertainty Versus Power Efficiency in LoRaWAN Networks. Rizzi, M., +, TIM April 2019 1101-1111

#### Wind turbines

Dual-Enhanced Sparse Decomposition for Wind Turbine Gearbox Fault Diagnosis. Wang, L., +, TIM Feb. 2019 450-461

Field Study of LWC and MVD Using the Droplet Imaging Instrument. Rydblom, S., +, TIM Feb. 2019 614-622

Signal Processing for Capacitive Ice Sensing: Electrode Topology and Algorithm Design. *Neumayer, M.*, +, *TIM May 2019 1458-1466* 

#### Windings

Characterization of DC Current Sensors With AC Distortion for Railway Applications. van den Brom, H.E., +, TIM June 2019 2084-2090

Method for the Absolute Calibration of Direct-Current Current Transducers. Zhao, J., +, TIM June 2019 1961-1966

#### Wireless channels

Throughput Analysis for Virtual MIMO WSNs Over Measured MIMO Channels. Dev, I., +, TIM Jan. 2019 297-299

#### Wireless LAN

Measurement Methodology for Determining the Optimal Frequency Domain Configuration to Accurately Record WiFi Exposure Levels. *Fernandez, M.*, +, *TIM Feb. 2019 547-557* 

PESA: Probabilistic Efficient Storage Algorithm for Time-Domain Spectrum Measurements. Al Kalaa, M.O., +, TIM Feb. 2019 325-333

Scalable Wi-Fi Client Self-Positioning Using Cooperative FTM-Sensors. Banin, L., +, TIM Oct. 2019 3686-3698

#### Wireless sensor networks

A Novel Measurement Data Classification Algorithm Based on SVM for Tracking Closely Spaced Targets. Zhao, Z., +, TIM April 2019 1089-1100

Design of Multichannel and Multihop Low-Power Wide-Area Network for Aircraft Vibration Monitoring. *Gao*, S., +, *TIM Dec*. 2019 4887-4895

FRF Measurements Subject to Missing Data: Quantification of Noise, Nonlinear Distortion, and Time-Varying Effects. *Pintelon, R.*, +, *TIM Oct. 2019* 4175-4187

Indoor Occupancy Awareness and Localization Using Passive Electric Field Sensing. *Tang, X.*, +, *TIM Nov. 2019 4535-4549* 

RSSI-Based Indoor Localization and Identification for ZigBee Wireless Sensor Networks in Smart Homes. *Bianchi*, V., +, *TIM Feb. 2019 566-575* 

Special Section on Sensors Applications Symposium. Gupta, G.S., +, TIM July 2019 2333-2334

Throughput Analysis for Virtual MIMO WSNs Over Measured MIMO Channels. Dev, I., +, TIM Jan. 2019 297-299

Toward High Integrity Personal Localization System Based on Informational Formalism. *Daher, M.*, +, *TIM Nov. 2019 4590-4599* 

Unattended Acoustic Sensor Systems For Source Detection, Classification, and Tracking. *Yaremenko, V.*, +, *TIM Feb. 2019 344-354* 

Using the Cloud to Improve Sensor Availability and Reliability in Remote Monitoring. Ooi, B.Y., +, TIM May 2019 1522-1532

Wireless Sensor Network System for Landslide Monitoring and Warning. Giri, P., +, TIM April 2019 1210-1220

### Wires (electric)

Fault Detection of VLSI Power Supply Network Based on Current Estimation From Surface Magnetic Field. *Takahashi*, D., +, *TIM July 2019 2519-2530* 

#### Wiring

AC and DC Quantum Hall Measurements in GaAs-Based Devices at Temperatures Up To 4.2 K. *Kucera, J., +, TIM June 2019 2106-2112* 

## Woven composites

Locating Defects in Anisotropic CFRP Plates Using ToF-Based Probability Matrix and Neural Networks. Feng, B., +, TIM May 2019 1252-1260

 $\mathbf{X}$ 

### X-ray apparatus

An Approach of Single-Crystal Defect Detection Using X-Ray Orientation Instrument. *Guan*, S., +, *TIM Oct.* 2019 4122-4134

### X-ray photoelectron spectra

Volume Measurement of a <sup>28</sup>Si-Enriched Sphere for a Determination of the Avogadro Constant at NMIJ. *Kuramoto*, *N.*, +, *TIM June 2019 1913-1920* 

#### Xenon

*k*-Space-Based Enhancement of Pulmonary Hyperpolarized <sup>129</sup>Xe Ventilation Images. *Deng*, *H.*, +, *TIM Oct. 2019 3950-3961* 

 $\mathbf{Y}$ 

### Yttrium compounds

Spincaloritronic Measurements: A Round Robin Comparison of the Longitudinal Spin Seebeck Effect. *Sola*, A., +, *TIM June 2019 1765-1773* 

 $\mathbf{Z}$ 

### Zeeman effect

Frequency Extension of Atomic Measurement of Microwave Strength Using Zeeman Effect. *Kinoshita, M.*, +, *TIM June 2019 2274-2279* 

Technical and Physical Limitations in the Determination of Background Mercury Concentration. *Vybornov, P., TIM Oct. 2019 3712-3717* 

## Zener diodes

Voltage Standard Based on Dry-Cooled High-Temperature Superconductor Josephson Junctions. *Khorshev, S.K.*, +, *TIM June 2019 2113-2120* 

# Zigbee

RSSI-Based Indoor Localization and Identification for ZigBee Wireless Sensor Networks in Smart Homes. *Bianchi*, V., +, *TIM Feb.* 2019 566-575

#### 7inc

Comparison of Electrical and Sensing Properties of Pure, Sn- and Zn-Doped CuO Gas Sensors. *Hemalatha, T.*, +, *TIM March 2019 903-912* 

Enhanced Electrochemical Detection of Multiheavy Metal Ions Using a Biopolymer-Coated Planar Carbon Electrode. *Hwang, J.*, +, *TIM July 2019* 2387-2393

#### Zoology

Bee Swarm Detection Based on Comparison of Estimated Distributions Samples of Sound. Krzywoszyja, G., +, TIM Oct. 2019 3776-3784